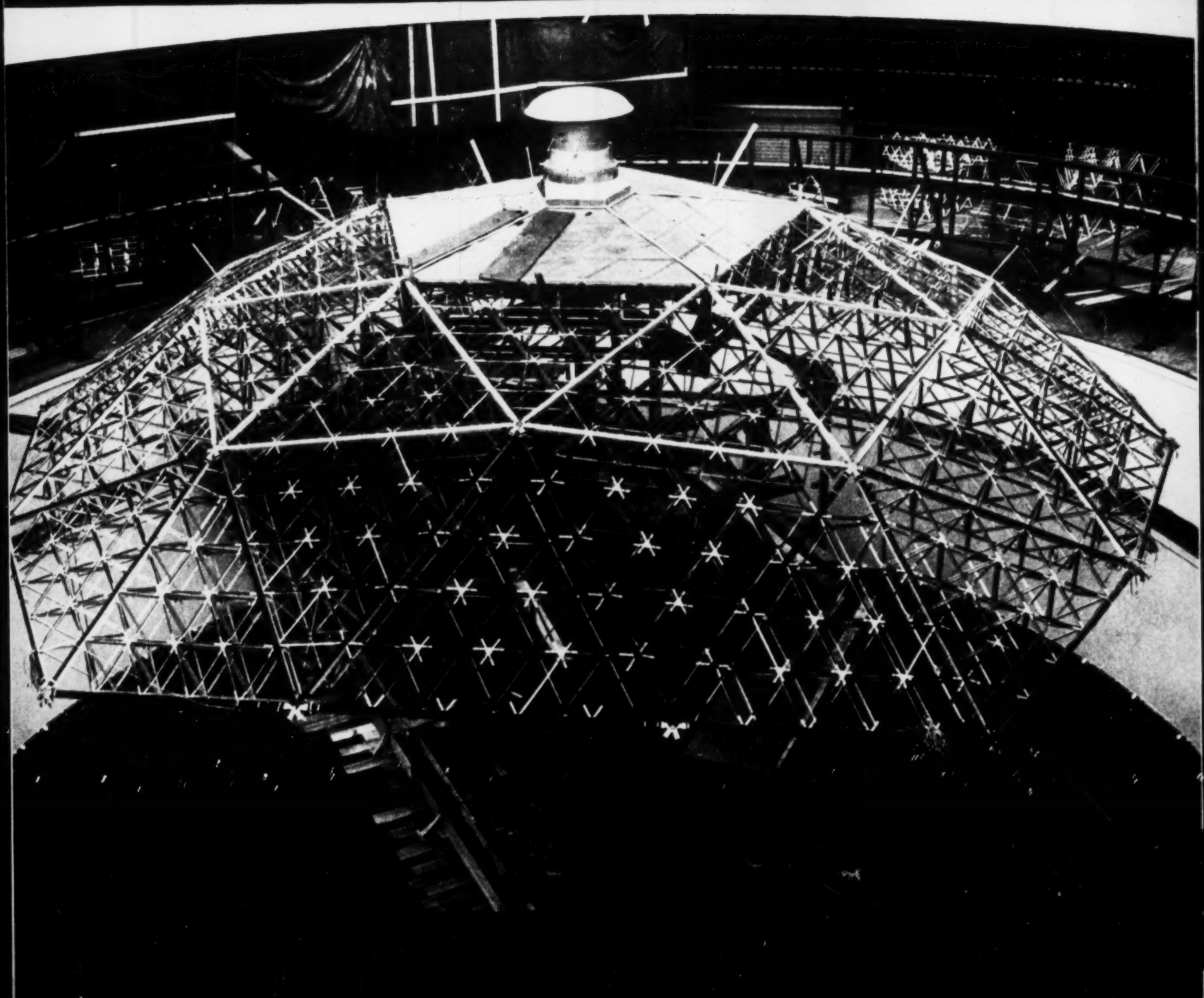
ENGINEERING NEWS-RECORD



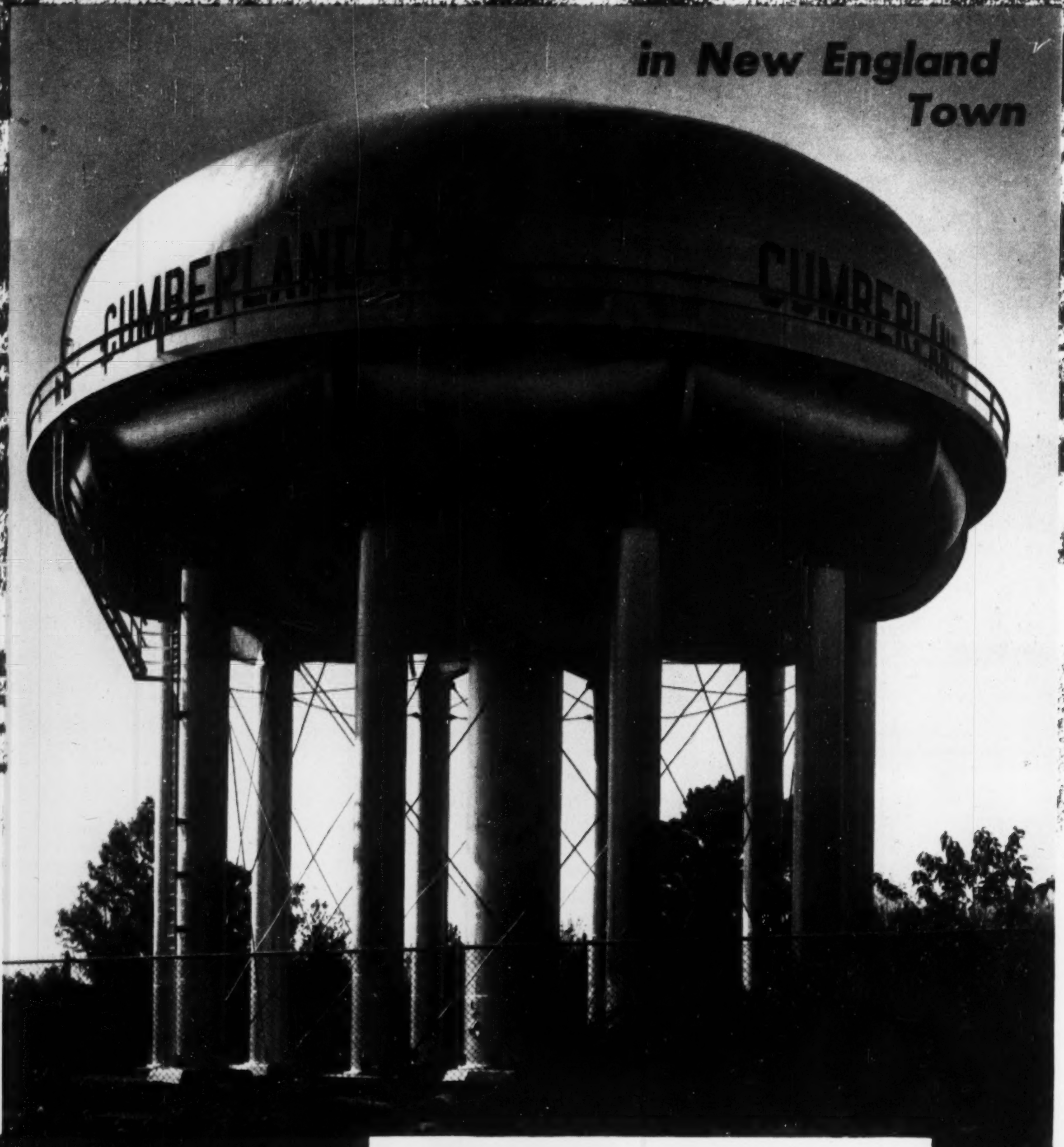
★

★

A McGRAW-HILL PUBLICATION

750,000-gallon HORTON ELEVATED TANK

in New England Town



INCREASES FIRE PROTECTION
CUTS INSURANCE RATES
[illegible] DEPENDABLE
WATER SUPPLY

Horton elevated water tanks with radial-cone bottoms like this one at Cumberland, R. I. are built in standard capacities from 500,000 to 3,000,000 gallons. Tanks with ellipsoidal-bottoms are built in capacities from 15,000 to 500,000 gallons. For estimates or quotations, please write our nearest office. State capacity desired, height to bottom and location. There is no obligation on your part.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3	2123 Healey Building
Birmingham, 1	1520 North 50th Street
Boston, 1	1012—201 Devonshire Street
Chicago, 4	2101 McCormick Building
Cleveland, 15	2201 Midland Building
Detroit, 26	1506 Lafayette Building
Havana	402 Abreu Building
Houston, 2	2109 C & I Life Building
Los Angeles, 17	1511 General Petroleum Building
New York, 6	3311—165 Broadway Building
Philadelphia, 3	1624—1700 Walnut St., Building
San Francisco, 4	1530—2000 Bush Street
Seattle, 1	1312 Henry Building
Tulsa, 3	1617 Hunt Building

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

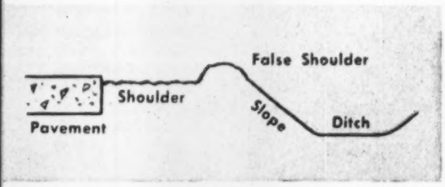
In Canada: HORTON STEEL WORKS, LIMITED, FORT ERIE, ONT.

TELEGRAM

Mr. Public Official:

DO YOUR HIGHWAYS HAVE A SHOULDER PROBLEM THAT THREATENS SAFETY . . . CAUSES EXCESSIVE BREAKUPS OF YOUR PAVED ROADS? IF SO . . . HERE'S A PRACTICAL, ECONOMICAL METHOD FOR FIRST RE-SHAPING, THEN MAINTAINING THOSE SHOULDERS WITH ONE MACHINE, ONE OPERATOR.

THE PROBLEM

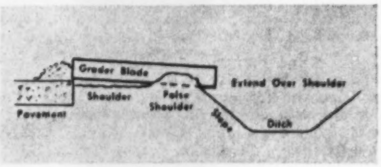


CROSS-SECTION of typical paved road with false shoulder that prevents proper drainage, encourages erosion of shoulder material and damage to pavement.

ACTUAL PHOTO of false shoulder, consisting of sod mat 3 to 4 inches high.

THE REMEDY

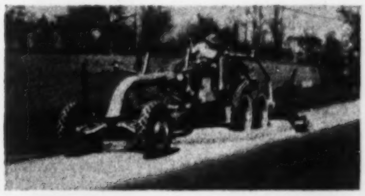
Cut off false shoulder with the Allis-Chalmers Model D's ROLL-AWAY moldboard—roll sod to edge of pavement.



Set grader moldboard as shown to insure clear cut and eliminate any obstacle to adequate drainage.

Windrow of sod consists mainly of root mat. Note that grader blade did not disturb or cut into shoulder gravel.

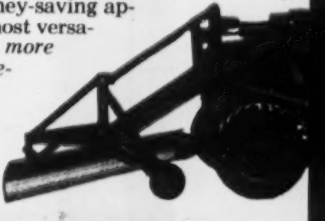
Load sod into truck with Model D's rear-end loader. Wide bucket lies flat on pavement, picks up cleanly without disturbing shoulder gravel.



Now slope shoulder with grader moldboard and feather windrow out behind with Shoulder Maintenance Blade.

The finished job—a smooth, safe, well-drained shoulder.

WITH false shoulder removed and proper shape re-established, the Allis-Chalmers Model D and rear-end loader with interchangeable Shoulder Maintenance Blade can *keep* the road in tip-top condition easily and at low cost. It's another money-saving application for the Model D, the most versatile of all motor graders. *For more information on shoulder maintenance, write now for Booklet MS-896*, or ask your Allis-Chalmers dealer for a demonstration.



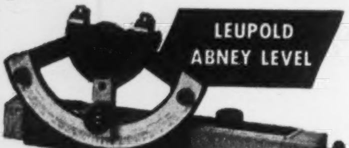
ROLL-AWAY is an Allis-Chalmers trademark

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A

for greater CONVENIENCE and ACCURACY

LEUPOLD *Engineered* LEVELS

Advanced design engineering and precision manufacturing techniques have earned world-wide acclaim for LEUPOLD instruments since 1907. Exclusive LEUPOLD features...dependable LEUPOLD accuracy are your assurance of time-saving, trouble-free service under all working conditions.



GREATER VERSATILITY WITH 1 INSTRUMENT
- **CHECKING ROAD GRADES**
- **TOPOGRAPHIC MAPPING**
- **DETERMINING TREE HEIGHTS**
- **GENERAL LEVELING WORK**

Exclusive LEUPOLD design holds scales in milled slide, ready for immediate use without removing and reversing the frame ... saves time and trouble on all jobs. Bubble magnifier adjusts internally to the user's eye. No draw eyepiece to retract for carrying...no re-focusing each time instrument is used. New improved micrometer adjustment on index arm gives easier, faster and more accurate readings.

4 SCALES AVAILABLE
- **Degrees**
- **Topographic**
- **Percent**
- **Chainage Corrections**

Overall Length......................6½ inches
Radius of Arc......................1¾ inches

Comes in saddle leather case with belt loop

MODEL A (Choice of any 2 scales)....**$27.50**
MODEL B (Choice of any 3 scales)....**$30.00**

LEUPOLD
HAND LEVEL

Compact, lightweight instrument for all preliminary leveling work. Measures only 5¼" in overall length. Exclusive LEUPOLD bubble magnifier adjusts internally to user's eye...brighter bubble eliminates eyestrain and permits faster, more accurate readings.

Overall Length......................5¼ inches
Diameter......................¾ inch

***Comes in saddle leather case* $11.70**

ORDER BY MAIL

or write for new literature on the LEUPOLD line of levels and compasses.

LEUPOLD & STEVENS INSTRUMENTS, INC.
4445 N. E. Glisan St., Portland 13, Oregon

ENGINEERING NEWS-RECORD

ABP Member ABC

Editorial offices: 330 W. 42nd St., New York 36. Tel. LOngacre 4-3000

Number of copies of this issue printed: 58,305

Contents on page 17

Waldo G. Bowman
Editor

E. E. Halmos Jr.	*Managing Editor*
V. T. Boughton	*Transportation, Power*
F. S. Merritt	*Architectural, Structural*
R. H. Dodds	*Contracting, Heavy Construction*
A. J. Fox Jr.	*Hydraulics, Water supply, Sanitation*
J. J. Christie	*National Affairs*
A. A. Layne	*Labor, Men and Jobs*
J. P. Chamberlain	*Business and Finance*
R. W. O'Neill	*International, Features*
A. R. Smith	*Municipal*
S. C. Jensen	*Materials and Equipment*
J. R. Carr	*Chicago*
L. L. Wise	*San Francisco*
Elsie Eaves	*Business News Department*
J. H. Webber	*Economics*
J. A. Mahoney, M. O. Wetzel	*Construction Reports*
M. W. Roessler, E. R. Huber, Dori Spielberg	*Statistics, Costs, Prices*
G. T. Orick	*Copy Desk*
H. G. Compton	*Photography*
T. D. MacGregor, Robin Bragg, T. J. Vilardi	*Copy, Rewrite, Layout*
Joan Ash	*Research*
L. T. Tarpey, J. C. Greenough	*Printing*

Washington News Bureau, Room 1189 National Press Building: G. B. Bryant, Jr., *Manager,* Glen Bayless, Jay Flocken, Boyd France, J. M. Gambatese, Sam Justice, W. H. Kearns, J. L. Kent, D. O. Loomis, Jesse Mock, Gladys Montgomery, A. L. Moore, M. A. Reichek, V. B. Smith, W. B. Whichard, Jr.

Domestic News Bureaus: *Atlanta,* 1321 Rhodes-Haverty Bldg., E. D. White; *Cleveland,* 1510 Hanna Bldg., R. A. Cochran; *Detroit,* 856 Penobscot Bldg., S. H. Brams; *Houston,* 1 Main Street, J. A. Lee; *San Francisco,* 68 Post Street, M. A. Ralston; *Los Angeles,* 1111 Wilshire Blvd., John Shinn; *Seattle,* 6040 Fifth Ave., N.E., Ray Bloomberg.

Correspondents: Albany, Albuquerque, Augusta, Me., Austin, Boston, Boulder, Baltimore, Birmingham, Bismarck, Charleston (W. Va.), Charleston (S. C.), Columbus, Cincinnati, Cleveland, Chicago, Cheyenne, Dallas, Detroit, Durham, Harrisburg, Helena, Houston, Hartford, Indianapolis, Jackson, Miss., Jacksonville, Jefferson City, Kansas City (Mo.), Lansing, Lincoln, Little Rock, Miami, Memphis, Minneapolis, Montgomery, Milwaukee, New Orleans, Norfolk, Omaha, Oklahoma City, Philadelphia, Pittsburgh, Portland (Ore.), Providence, Phoenix, Pierre, St. Louis, Schenectady, Syracuse, St. Paul, Seattle, Salt Lake City, Spokane, Topeka, Trenton. *Canada:* Montreal, Toronto, Ottawa, Victoria, Regina.

Foreign News Bureaus: J. K. Van Denburg, Jr., *New York;* G. W. Schroeder, *Frankfurt;* Nathaniel McKitterick, *London;* Herbert Leopold, *Manila;* John Wilhelm, *Mexico City;* Ross Hazeltine, *Paris;* A. W. Jessup, *Tokyo.* **Correspondents:** Amsterdam, Athens, Bangkok, Bogota, Bombay, Brussels, Buenos Aires, Caracas, Copenhagen, Geneva, Havana, Helsinki, Johannesburg, Lima, Madrid, Melbourne, Oslo, Rome, Stockholm, Sydney, Tehran, and 21 other principal cities and countries.

Robert F. Boger
Publisher

May 28, 1953 **ENGINEERING NEWS-RECORD** **Vol. 150—No. 22**

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record — Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates — United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.
Copyright 1953 by McGraw-Hill Publishing Co., Inc. — All Rights Reserved.

"There's
only
ONE
reason!"
Norman Rockwell

IT'S JUST THAT SIMPLE. There's only one reason in the world why 2 out of 3 wire rope users in the excavating and construction field prefer Roebling wire rope . . . *it costs a lot less on the job than any other.*

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your machines.

ROEBLING CF&I
A subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

EUCLID LEVER-TYPE SCRAPERS

for More Production and Lower Costs

These Euclid Features mean more payloads per hour

- **Stability, Safety and better utilization of power with the 4-wheel Euclid tractor.**
- **Independent control of all Scraper operations.**
- **Lever actuated controls.**
- **Only 12 feet of cable.**
- **Simplified, compact hydraulic system. Completely interchangeable hydraulic jacks.**
- **Reversible and interchangeable cutting blades.**
- **10-speed transmission . . . 28 m.p.h. with full payload.**
- **Struck capacity 15.5 cu. yds. . . . 21 cu. yds. heaped at 1:1 . . . 18 cu. yds. at 3.1 slope . . . 275 h.p. engine.**

The advanced design of Euclid Lever-Type Scrapers offers many profit-making features not available in any other scraper. Because of their fast, easy loading, their high job availability and their low maintenance cost, "Euc" Scrapers have been the choice of many leading contractors... now, they are even better in production and performance!

Euclid lever action design sets a completely new standard for scrapers in long life, trouble-free performance and profitable production!

Outperforms all other scrapers of comparable size!

No more down time due to broken cables!

Lever action, an exclusive Euclid development, is the most important improvement in Scraper design and performance in many years. Hydraulic jacks, each interchangeable with the other, operate levers that actuate bowl and apron lift and the positive roll-out ejector.

There are no cables to break . . . there is only one 12' length of cable, used for the apron lift, on the scraper. There is no down time or lost time due to complicated sheaves, pulleys and cable connections. There's no danger of damage or delay resulting from broken cables during loading, on the haul road or fill.

SIMPLIFIED HYDRAULIC SYSTEM All suction lines and complicated connections are eliminated by mounting the large capacity pump in the supply tank. The compact assembly of tank, control valve and internally mounted pump is readily accessible and easy to service.

LEVER ACTION Bowl, apron and ejector are independently controlled by lever action with hydraulic jacks. Only 12' of cable are used! Euclid "years ahead" design assures fast, positive action of all scraper operations . . . lower maintenance cost and more profit per yard.

INTERCHANGEABLE JACKS All four of the hydraulic jacks which operate the bowl, apron and ejector levers are completely interchangeable. One spare fits everywhere!

REVERSIBLE CUTTING BLADES Cutting blade consists of four identical reversible sections. This design provides long service life and permits various blade arrangements for most efficient loading in all kinds of material.

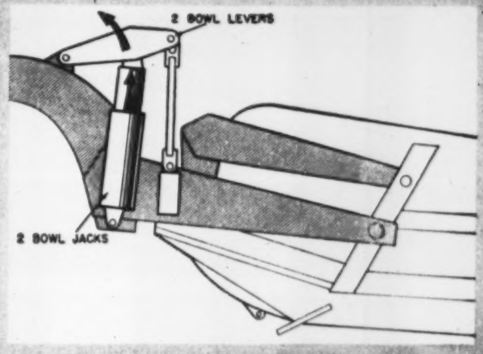
SPEED AND STABILITY Four wheel tractor with 10-speed transmission permits faster average travel speeds . . . has positive steering control that results in greater safety and stability . . . better traction on grades because of favorable transfer of weight to drive wheels. The 10-speed transmission permits maximum use of power provided by the 275 h.p. engine . . . top speed loaded is 28 m.p.h.

ASK YOUR EUCLID DISTRIBUTOR for information and performance data on this new Euclid Lever-Type Scraper. A descriptive catalog folder, Form A 502, is yours for the asking.

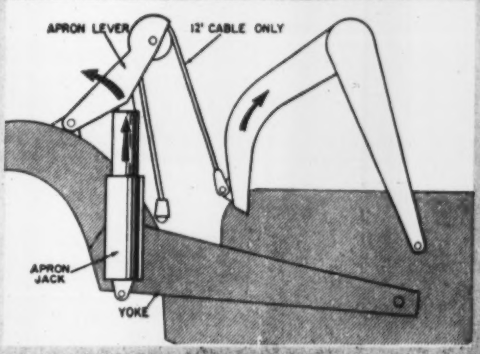
THE EUCLID ROAD MACHINERY CO.

CLEVELAND 17, OHIO

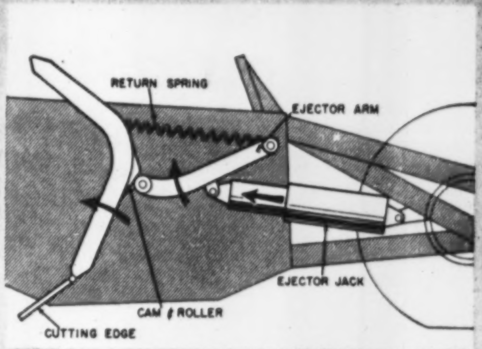
CABLE ADDRESS: YUKLID CODE: BENTLEY



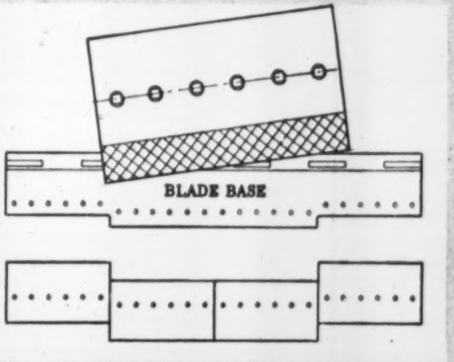
High Bowl Lift



Fast Apron Opening



Positive Power Ejector

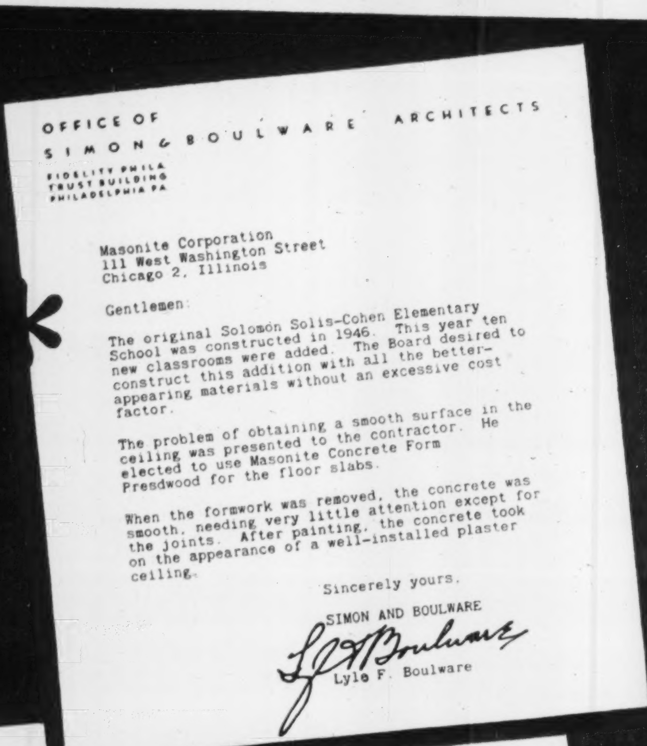


Interchangeable, Reversible Cutting Blades

Euclid

SPECIALIZED EQUIPMENT

for moving earth, rock, coal and ore



OFFICE OF
SIMON & BOULWARE ARCHITECTS
FIDELITY PHILA
TRUST BUILDING
PHILADELPHIA PA

Masonite Corporation
111 West Washington Street
Chicago 2, Illinois

Gentlemen:

The original Solomon Solis-Cohen Elementary School was constructed in 1946. This year ten new classrooms were added. The Board desired to construct this addition with all the better-appearing materials without an excessive cost factor.

The problem of obtaining a smooth surface in the ceiling was presented to the contractor. He elected to use Masonite Concrete Form Presdwood for the floor slabs.

When the formwork was removed, the concrete was smooth, needing very little attention except for the joints. After painting, the concrete took on the appearance of a well-installed plaster ceiling.

Sincerely yours,

SIMON AND BOULWARE

L F Boulware

Lyle F. Boulware

* CONCRETE EVIDENCE that MASONITE CONCRETE FORM PRESDWOOD saves money!

The above letter is one of many telling how Masonite Concrete Form Presdwood has earned its way—and then some—for contractors in all parts of the country.

This dense, grainless, all-wood hardboard leaves a remarkably smooth concrete surface . . . ready for painting with a minimum of preparation. For surfaces to be left unpainted, using the screen side of Concrete Form Presdwood® will cut down hand-rubbing time 50% or more.

Much of your savings grow out of the ease of cutting and fitting these handy 4′ x 8′ or 4′ x 12′ panels. Offer a minimum number of joints. Furthermore, they:

- Can be used again and again
- Won't split, splinter or crack
- Easily worked with carpentry tools
- Can be curved for arches, columns, etc.
- Insures complete, uniform hydration

MASONITE® CORPORATION

Dept. ENR-5-28, Box 777, Chicago 90, Ill.

"Masonite" signifies that Masonite Corporation is the source of the product

Please send me your brochure on Masonite Concrete Form Presdwood.

Name..

Address.............................Zone.........

City..

County...........................State...................

Better Hardboards for Better Concrete

Order from your building materials dealer

READER COMMENT

Evaporation recollections

Sir: Your article in the March 19 issue, on study of lake evaporation data, brings back to me, an old-timer, recollections of such a study made over fifty years ago in connection with a survey for a proposed Nicaragua Canal.

Under the direction of the late A. P. Davis, in charge of hydrographic studies, a number of us youngsters were established at different points in Nicaragua and on the edge of Costa Rica, with equipment for measuring rainfall, stream flow, sediment carriage, evaporation and temperatures wet and dry bulb.

The evaporation equipment consisted of a galvanized iron pan, about 4 x 4 ft in size and 15 in. deep, supported in quiet water by a framework of ten to 12-in. balsa logs. The edge of the pan was about 3 in. above water, and a bronze gage made it possible to read the height of the water to an accuracy of ⅛ in., plus or minus.

During the dry season, the evaporation averaged close to ⅓ in. per day. Having 170 days of dry weather, this loss, about 5 ft, typical of that of Lake Nicaragua, plus the amount of water required for ship lockage and some outflow to maintain the San Juan River and with little inflow, raised a real question as to the feasibility of the Nicaragua Route.

The group of readings per station probably cost about $200 per month. How does this check with the cost of investigation covered in your article?

George R. Wadleigh
Consulting Engineer
New York, N. Y.

[Editor's Note—R. W. Davenport of the U. S. Geological Survey says in reply to Mr. Wadleigh's query on costs that total price of the Lake Hefner work is not available from USGS, since each collaborating agency kept its own accounts. It may be of interest to note, however, that the instruments alone for this recent work cost $15,000.]

Oregon sets a record

Sir: The Bureau of Public Roads issues each month a tabulation showing the progress made by the different states in the programming of their federal-aid allotments, the preparing and submitting of plans and the undertaking of construction. These tabulations are on a dollars and cents basis but by comparing the amounts shown therein with the amounts of federal-

(Continued on page 11)

7 SIZES...200 Tons Per Hour

for state highway, bituminous, or ready-mix concrete work

TELSMITH ENGINEERED QUARRY PLANT of Valley Quarries, Inc., New Franklin, Pa.

The large demand for crushed aggregate in the lower Cumberland Valley of Pennsylvania is supplied by this Telsmith-engineered quarry plant. The rock is high grade blue limestone. Plant capacity is 200 tons per hour of minus 2½″, making all sizes for state highway work, and ready-mix concrete operations, with provisions for producing large tonnages of fine sizes for bituminous work. With their low-cost, efficient operation, Telsmith-engineered plants pay profits. Get Bulletin 266.

Q-26

TELSMITH
Equipment in this Plant

5′ x 12′ Double-Deck Scalper Screen
13-B Gyratory Breaker
10″ x 36″ Jaw Crusher
5′ x 12′ Triple-Deck Pulsator Screen
3′ x 10′ Double-Deck Pulsator Screen
36 Style S Gyrasphere Crusher
36 Style FC Gyrasphere Crusher
No. 5 Belt Elevator
4′ x 10′ Triple-Deck Vibro-King Screen

SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St.
New York 17, N. Y.

211 W. Wacker Drive
Chicago 6, Ill.

713 Commercial Trust Bldg.
Philadelphia 2, Pa.

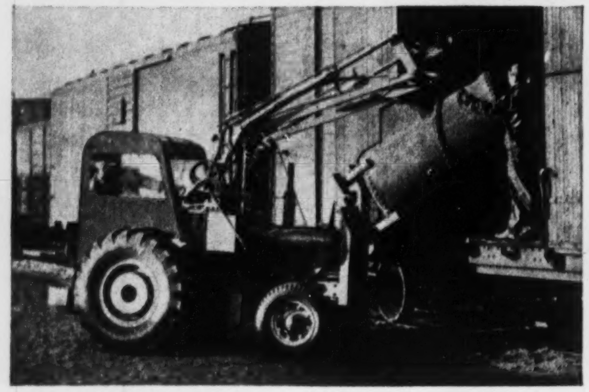
238 Main Street
Cambridge 42, Mass.

Boehck Eqpt. Co.
Milwaukee 3, Wis.

The McLean Co., 3535 Lakeside Ave.
Cleveland 14, Ohio

Marens Eqpt. Co., 432 Main St., Rochester, Mich. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif.
Rish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Interstate Equipment Co., Statesville, N. C.

Why **Shoveloaders**® do more jobs than any other front end loader



Another Shoveloader® *Performance Report*

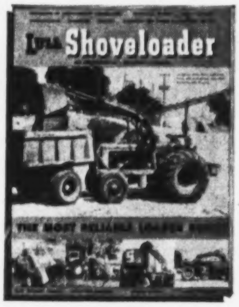
A midwestern construction company* handles major road construction jobs all over the United States. They own four Lull Shoveloaders and place one on every job possible. They are used for picking up and loading broken concrete, cleaning up around bins in asphalt plant, etc. They are used, with crane hook, for handling construction of asphalt plant, hoisting auxiliary engines, setting up hoppers, and loading feeders on to trucks when sending material out to jobs. They pull tampers, power booms and pneumatic rollers, and do clean up around trucking company yards. They are also sent out on rental for snow removal jobs. These Shoveloaders have required no attention other than routine maintenance.

This experience of this construction company shows why Shoveloaders do more jobs than any other front end loader. It is routine to see Shoveloaders everywhere being used for a wide variety of jobs and for types of work which ordinary front end loaders just can't handle.

Shoveloader's rugged frame and powerful hoisting cylinders, with hydraulically controlled bucket, are designed and built to handle the roughest jobs with the smoothest performance. They are balanced for complete ease and safety in handling and steering.

Shoveloaders mount exclusively on dependable Case, Minneapolis-Moline, Oliver and Sheppard diesel industrial type tractors. Contact these distributors for complete information and let them demonstrate what Shoveloader can do for you.

The easily added snow and coal bucket, fork, bulldozer, crane and broom tools keep the Shoveloader busy on dozens of jobs all year around.



**Name on request.*

Write today and let us send you Bulletin AD-32A containing full data and specifications on wide range of models and attachments.

**Baker
Lull**
handling equipment

THE BAKER-LULL CORPORATION
Formerly the Lull Manufacturing Company

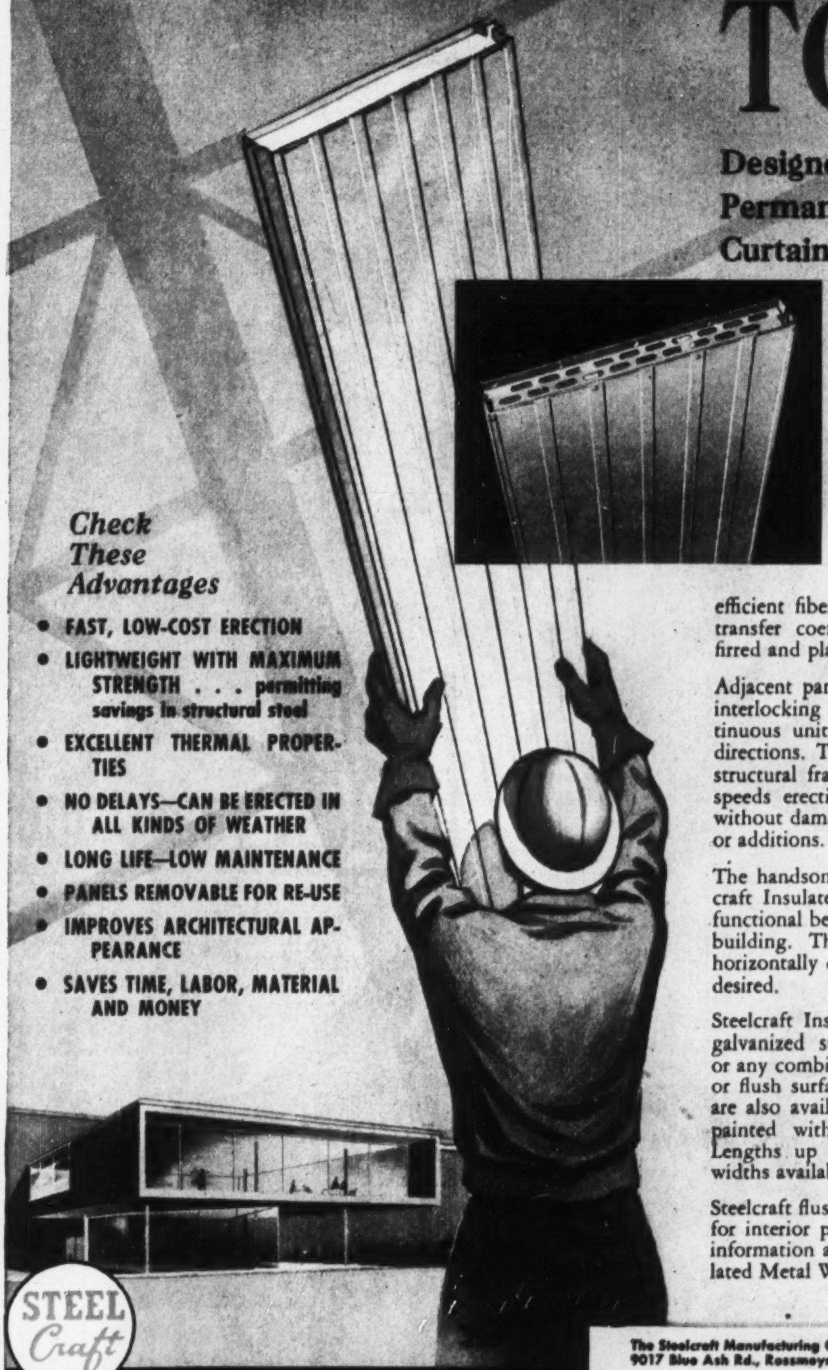
368 WEST 90th STREET • MINNEAPOLIS 20, MINN.
A Subsidiary of the Baker-Raulang Co., Cleveland 2, Ohio

STEELCRAFT *Presents Tomorrow's*

INSULATED METAL WALL PANEL . . .

TODAY!

Designed and Engineered for Permanent, Economical Curtain Wall Construction



Check These Advantages

- **FAST, LOW-COST ERECTION**
- **LIGHTWEIGHT WITH MAXIMUM STRENGTH . . . permitting savings in structural steel**
- **EXCELLENT THERMAL PROPERTIES**
- **NO DELAYS—CAN BE ERECTED IN ALL KINDS OF WEATHER**
- **LONG LIFE—LOW MAINTENANCE**
- **PANELS REMOVABLE FOR RE-USE**
- **IMPROVES ARCHITECTURAL APPEARANCE**
- **SAVES TIME, LABOR, MATERIAL AND MONEY**

Steelcraft research developed it . . . and Steelcraft engineering produced this new, practical, lightweight insulated metal wall panel. The Steelcraft panel is completely factory assembled, ready for fast, easy application. It consists of an inside and outside plate separated by a reinforcing web. Metal to metal contact is eliminated by a special cork and neoprene gasket. This feature, plus the 3" core of efficient fiberglass insulation, results in a heat transfer coefficient superior to a conventional firred and plastered solid masonry wall.

Adjacent panels are held together by an unique interlocking weatherproof joint to form a continuous unit that resists load pressure from all directions. The panels are firmly secured to the structural framing with a special type rivet that speeds erection, yet permits removal of panels without damage in the event of future alterations or additions.

The handsome, streamlined appearance of Steelcraft Insulated Metal Wall Panels enhances the functional beauty of any commercial or industrial building. They can be installed vertically or horizontally depending on the architectural effect desired.

Steelcraft Insulated Wall Panels are available in galvanized steel, aluminum and stainless steel or any combination of these materials with fluted or flush surfaces on outside face of panel. They are also available in galvanized color-bond steel painted with one coat of baked-on enamel. Lengths up to 20'. Standard widths 24" (16" widths available if specified).

Steelcraft flush-type insulated panels are also ideal for interior partitions. Write today for complete information and erection data on Steelcraft Insulated Metal Wall Panels.

STEEL Craft
REG. U. S. PAT. OFF.

THE STEELCRAFT MANUFACTURING COMPANY
Rossmoyne, Ohio (In Greater Cincinnati)
West Coast Division, 14330 Bessemer St., Van Nuys, Calif.

The Steelcraft Manufacturing Company, Dept. ENR-553
9017 Blue Ash Rd., Rossmoyne, Ohio (In Greater Cincinnati)

Please send me complete information and erection data on Steelcraft Insulated Metal Wall Panels.

Name__________ Title__________
Company__________
Address__________
City__________ Zone_____ State_____

GUY H. JAMES CONSTR. CO.
P&H
1055
P&H

ROCK RATED!

for the
hardest years ahea

Your profits depend on the strength and speed of loading equipment — and P&H gives you more of *both*.

P&H *greater strength* comes from welded alloy steels — the toughest construction known. No wonder P&H can take pounding and shock loads that K.O. less rugged machines.

P&H *greater speed* comes from Magnetorque* Electric Swing — actually 15% to 25% faster than any other machine of its size to give you greater production, lower tonnage costs. And it's goodbye to maintenance and replacement problems for years to come . . . Magnetorque lasts the life of your P&H.

But to get fully acquainted with this outstanding producer, let us direct you to a 955-A in action. If you want bigger capacity, same advanced design, ask about the P&H 1055-A (3½ yd.)

P&H MAGNETORQUE
Electric Swing puts you beyond the "clutches of wear"

P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER CORPORATION
MILWAUKEE 46, WISCONSIN

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

the P&H Line

TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PRE-FABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

aid allotted to the states, it is possible to determine the progress of the different states in percentages of federal-aid allotments and thus to determine the relative positions of the different states in the advancing of their federal aid programs to the "plans prepared and ready for contracting" stage.

For the last 24 months, the Oregon Highway Department has each month made this determination of relative positions. A summary of these determinations brings to light the fact that for 16 of the 24 months, the Oregon Department has been in the number one position and that in none of the 24 months has it been below third position. The summary shows the second high ranking state to be Texas with 3 firsts, 8 seconds and 7 thirds. Other states showing ranks above fourth are Wyoming with 2 firsts, 8 seconds and 9 thirds and California with 3 firsts, 4 seconds and 4 thirds. No states other than the four mentioned have shown rank above fourth place in any of the 24 months.

R. H. Baldock
State Highway Engineer
Salem, Ore.

CALENDAR

American Society of Civil Engineers, spring meeting, Casablanca Hotel, Miami Beach, Fla., June 15-19.

American Institute of Architects, Metropolitan Theater, Seattle, Wash., June 16-19.

National Society of Professional Engineers, Sheraton Beach Hotel, Daytona Beach, Fla., June 18-20.

Conference on road and street traffic control, Purdue University, Lafayette, Ind., June 22-24.

American Society for Engineering Education, annual meeting, University of Florida, Gainesville, June 22-26.

Conference on modern highways, Massachusetts Institute of Technology, Cambridge, Mass., June 23-25.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 28-July 3.

Summer program in Advanced Strength of Materials, M.I.T., Cambridge, Mass., July 6-17.

Briefs
from the YEOMANS GUARD

It's a Law . . . Never Pump a Liquid For Which The Pump Was Not Designed

That sounds a bit rudimentary for a sophisticated industrial and technical audience; yet here's a simple, unwholesome truth—

- a shocking percentage of pump troubles are traceable directly to installations of pumps wholly unsuited to their jobs.

This and several more hard-shelled facts form the subject matter of Manual 2000—a business-like document whose mission is to substitute common sense for costly nonsense in the use and care of pumps.

It sets forth, with cartoon illustrations, some basic and valuable information concerning

- analysis of "what is this pump expected to do?"
- how to minimize irritating, high-costly maintenance
- how to make sure that a pump will deliver a maximum of efficient performance through a maximum of useful life.

You'll find trusty Manual 2000 invaluable for training operating personnel—by emphasizing that the best way to save money is to *prevent its waste.*

☐ Please send Manual 2000.

- **installed 1906**
- **still going strong**

Meet "Mr. Vertical Pump"

A Yeomans Type R Vertical Centrifugal Sump Pump, installed in 1906 by F. W. Cook Co., Evansville, Indiana, has been in continuous operation ever since, *pumping oil to a filter.*

Quite properly, this veteran won a $50 U. S. Savings Bond for Wilbur Sapp, Cook's Chief Engineer, who entered it in the Yeomans "Mr. Pump" Contest, aimed at finding the oldest Yeomans pumps in operation.

"No replacement parts have been required for this pump during my 16 years with Cook," says Mr. Sapp; "and none as far as I know had been required during the years preceding."

Today this prize-winning pump is known as Yeomans Series 3000 Heavy Duty Bilge Pump; and its remarkable performance indicates exactly what you can expect in flawless efficiency and rugged durability.

☐ Send Bulletin 3-8000.

Better pumps because of LUBRI-VAC*

Anyone can build vertical centrifugal pumps, and many do. There's no valid reason why they shouldn't be good pumps—and the fact is, most of 'em are. But the pay-off comes in *how long the pump stays in operation—how soon the main bearing has to be replaced.*

So here's the pitch:

- Yeomans Vertical Wet Pit Centrifugals are *better pumps*—will stay on the job longer, without bearing failure—than any similar pumps you can name: *because they are equipped with Lubri-Vac.*

Lubri-Vac is a Yeomans development—a system of lubrication, remarkable in its simplicity, that *keeps the bearing properly lubricated.*

Field data on hundreds of installations prove that Lubri-Vac has reduced bearing failures by an astonishing 95 per cent.

What more need be said?

There are two models of Yeomans Vertical Wet-Pit Centrifugals:

- Series 3000—Heavy Duty Bilge Pump
- Series 8000—Screenless Ejector.

Each is unique—it has Lubri-Vac.

Step 1 toward ending wet pit pump nuisances is to send for—

☐ Bulletin 3-800.

*Lubri-Vac—A Yeomans Trade Name.

For Your Data File... complete information on PERFECTION: New SHONE® Literature

1870—the first Shone Pneumatic Ejector was built in England. Thousands were installed, all around the world. The first U. S. installation was in 1889.

1953—many of those first Shones are still in operation—and just as efficient as the day they were installed. There's never been a change in basic Shone design—because none was needed.

The Shone Pneumatic Ejector, a Yeomans product, pumps sewage, drainage, solids-carrying liquids; for buildings, sewage-lift stations, industrial applications.

☐ Send SHONE Literature

The Yeomans Guard, published several times a year, is a compendium of news and useful information, covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY
1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS
Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.

NOW...

Fast Smooth

COUNTS MORE

And it's yours with Bucyrus-Erie Excavator

3/8 to 4 yd. Gasoline,
Diesel, Single-Motor
Electric Excavators
Hydrocrane
Hydrohoe

SPEED is a traditional characteristic of Bucyrus-Erie excavators . . . and speed in the individual dig, swing and dump operations only tells part of the story.

In Bucyrus-Erie machines, working speed starts on the drawing board, where cycle functions are **balanced** with one another (as well as being designed fast in themselves) . . . and co-ordinated with proper weight distribution. Adding smooth, steady power . . . liberally used anti-friction bearings . . . easy-filling dippers . . . and direct-action mechanical control gives them the overall production speed that has made them the standard of the industry.

Eliminating lost time and waste motion is one big way to boost output wherever excavators are used. Now . . . when that counts more than ever, you can count on Bucyrus-Erie excavators to "deliver the goods." 60E52C

BUCYRUS-ERIE COMPANY, South Milwaukee, Wisconsin

WAYS TO MAKE
YOUR EXCAVATOR
-work harder
-live longer

[illegible] many important topics covered in a new [illegible] page booklet—"How to Make Your Excavator Work Harder—Live Longer." It's also loaded with valuable hints on lubrication, adjustments, engine care, safety and many other phases of excavator care. Write for your copy now!

Cycle
THAN EVER
BUCYRUS ERIE
MOST COMPARED
MOST PREFERRED

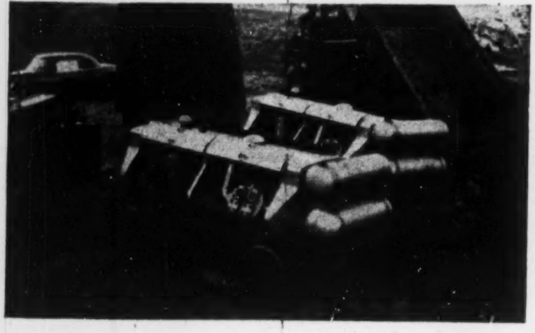
See Your Bucyrus-Erie Distributor

SHOVELS • DRAGSHOVELS • DRAGLINES • CLAMSHELLS • CRANES

Advertisement

NEWS from the Field . . . as reported by . . .

ARKANSAS — "2000 hours on my *600* with no trouble of any kind. Holding 100 pounds pressure while operating two 4" wagon drills." Stays on till the job is done — that's the way the Gardner-Denver *600* is built.



PENNSYLVANIA — "Have two WH600 Portables operating side by side . . . keeping the job right on schedule . . . have required only routine maintenance."

W. VIRGINIA — "In continuous service . . . and running like a watch." Starts easily — keeps on going. No tricky adjustments to require constant attention.

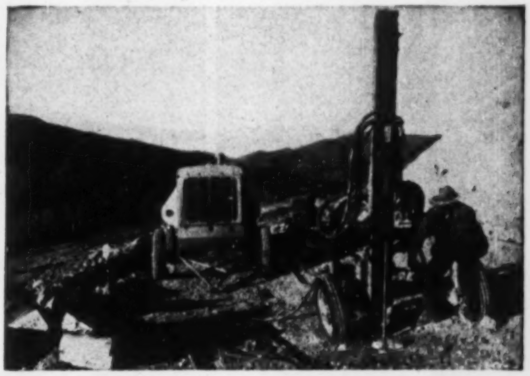
Advertisement

Contractors now using the GARDNER-DENVER 600

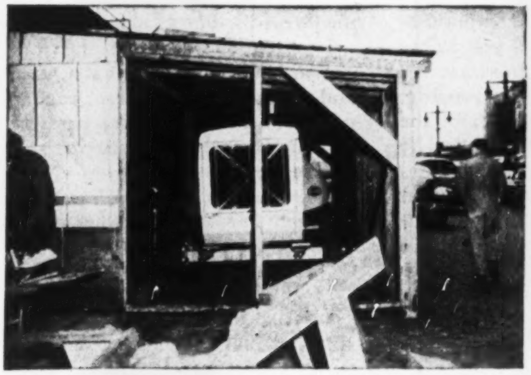
PENNSYLVANIA — "Side by side test convinced us the *600* saves fuel . . . as much as one gallon in four on our job." The *600* is economical with oil, too.

WASHINGTON — "Our regular operator required no special training to run the *600*. Well pleased with the performance of this heavy-duty unit."

CALIFORNIA — "Around the clock operation . . . have five machines in continuous service . . . very satisfactory." Ask the men who use the *600*.



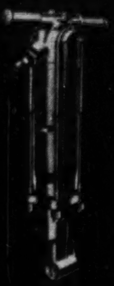
CANADA — "Increased drilling footage . . . running my *600* ten hours a day with no trouble." The *600* speeds your work — increases profits.



NEW YORK — "Smooth and quiet . . . even at full capacity." Balance a 50-cent piece on an operating *600* — see for yourself how free it is from vibration.

KANSAS — "Have one of the first machines built . . . highly pleased. Operating two 4" wagon drills." The *600* will see you through many a tough job.

For complete information, write to Gardner-Denver Company, Quincy, Illinois. In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 13, Ontario. Since 1859. The quality leader in compressors, pumps and rock drills for construction, mining, petroleum and general industry.

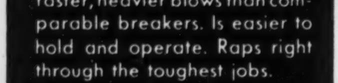


SUPER HEAVYWEIGHT This 90 lb. bruiser will knock the starch out of those tough, heavily reinforced concrete sections.

HEAVYWEIGHT Strikes faster, heavier blows than comparable breakers. Is easier to hold and operate. Raps right through the toughest jobs.

MEDIUM WEIGHT A hard-hitting but very easy-handling Breaker designed for thin-section concrete and other average demolition jobs.

THE THRIFTY JOY DUAL-VALVE



MAKES AIR DO MORE WORK!

Permits higher drilling speeds with lower air consumption. Effectively lowers drilling costs.

JOY PAVING BREAKERS

. . . WHEN DEMOLITION IS YOUR AIM!

Joy Paving Breakers are cadmium-plated *inside and out*—and you know what that means. The cadmium stops rust and corrosion, prevents scoring, and speeds up the running-in of the new tool. Lubrication is controlled by the throttle. Each movement actuates a mechanism which shoots the proper amount of oil to all working parts.

You've a dual-purpose tool with a Joy Breaker, too. Swap the chuck housing for a driving shoe and guide, and . . . PRESTO . . . you're holding the world's finest Sheeting Driver!

Joy Breakers offer less jarring and operator fatigue . . . less maintenance and replacement. Interchangeability of parts allows a smaller parts inventory. ● Descriptive bulletins tell all. Write ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Consult a Joy Engineer

JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

W&D C 4602

THE CONSTRUCTION WEEK

CONTENTS

May 28, 1953 Vol. 150, No. 22

NATIONAL AFFAIRS

House asked to deny funds for 44 Army Engineer jobs ... 21
Plans for Snake River dams ready ... 21
Waste treatment plants said to be needed in Missouri Basin states ... 22
Seaway bill stays alive ... 22
Industrial building awards fall off but still exceed last year's rate ... 23
California counters Arizona's claims to water under Colorado River pact ... 24
Oklahoma Turnpike has prosperous start ... 24
Failure of warehouse trusses probed ... 25
Tornado damage greatest in old structures ... 25
Raritan River factions still at odds ... 26
Additional Niagara Falls works proposed ... 26
Columbia River project moves forward ... 27
Spending slowdown for Massachusetts road construction ... 27

LABOR

Construction exemption bill killed ... 28
St. Louis transportation strike halts movement of building materials ... 28

FEATURES

Dome built on rotating jig ... 31
Where composting stands ... 35
$65-million steel plant expansion nears completion ... 36
Kern River storage dam completed ... 39
Detour handles 100,000 cars a day ... 40
Is the Baltimore plan the way to beat slums? ... 49

MEN AND JOBS

Hardy Cross of Yale retires ... 63
Emil H. Praeger—"Metropolitan Engineer of the Year" ... 64

INTERNATIONAL

Unusual cantilevers, trusses built for concrete hangar at London airport ... 68

BUSINESS AND FINANCE

ENR survey shows interest rate boost has done little for builders ... 85
Mackinac financing seems all set now ... 85
Guaranteed plaster aggregate offered for first time ... 85
VA restricts discounts on new 4½% mortgages ... 86
Proposed work piles up in record ENR backlog ... 86
Delaware River bridge is expensive, but the money is around ... 87

NEW PRODUCTS

Plastics: New materials not replacements ... 103

Reader Comment ... 6
Calendar ... 11
Washington Observer ... 19
Engineering News-Pictures ... 46
Obituaries ... 66
Unit Prices ... 71
Construction Report ... 72
Construction Trends ... 86
Editorials ... 112

- **Interesting omission**—That power study for the Missouri Basin presented at Huron, S. D., was as interesting for what it didn't say as for what it did.

Presented to a special subcommittee of the Missouri Basin Inter-Agency Committee, the report was prepared by federal agencies in cooperation with states. It urged:

1. That private utilities fill the gap (an estimate 170% increase) between federal generating capacity and demand through construction of thermal plants;
2. Maximum utilization of federal hydro power by extensive integration with "existing and potential" thermal plants.

The report very carefully sidestepped any mention of federally built thermal plants—a project long eyed unofficially by the Bureau of Reclamation, with use of vast reserves of lignite for fuel also in mind.

Nothing will be done about the report until a meeting next month in Minneapolis.

- **Competition?**—Undismayed by their turndown in bidding for work on Chief Joseph Dam, British firms will bid for engineering work on a proposed $60-million vehicular tunnel at Hampton Roads, Va. The British consul at Norfolk reported he had made "very informal" inquiries of the Virginia Department of Highways on behalf of British contractors, had been assured that the bids would be considered.

- **Desert navy**—The Bureau of Reclamation has called for bids on a tugboat that will be the biggest vessel operating in Arizona—a 60-ft. craft to pull the dredge "Colorado" as it straightens out kinks in the Colorado River near Needles, Calif.

The tug is to be powered by two diesels, will have a draft not exceeding 4½T, will be all-welded.

- **Bumping on down**—Interior Secretary McKay's capsule description of troubles in attempting to achieve economy under Civil Service will be dear to the hearts of many a construction man—and many a state and municipal official. Said McKay:

His department decided to discharge some 2,000 (of nearly 14,000) employees in the Reclamation Bureau. So as not to cripple any office, a careful study was made, and selected employees were named for discharge.

But employee "A" had much seniority, employee "B" was a veteran. Both "bumped" someone below them with less seniority. "We discovered," said McKay wryly, "that we would wind up by firing the elevator operators."

- **Vacancies**—And while Interior was having trouble getting rid of people, the Corps of Engineers announced plaintively that it had jobs paying $3,000 to $5,940 a year going begging.

The Corps was looking for marine firemen, launch operators, lockmen, and others.

Make Firm Sewer Bids On Unstable Foundations

Why do contractors like Armco Sewers? Because they are integral conduits? Because they combine strength with light weight and flexibility? Yes, all these reasons help—but the *low installed cost* of Armco Corrugated Metal Pipe is the convincing factor for difficult sewer applications.

Whether conditions are normal or hazardous, you'll find sewer installations more profitable with Armco Pipe. Long, 20-foot lengths speed the work. Light weight simplifies handling and hauling. And simple bolted coupling bands join sections together tightly, permanently. A small crew handles the whole job. With these labor-saving advantages it's easier to submit lower bids without sacrificing profit.

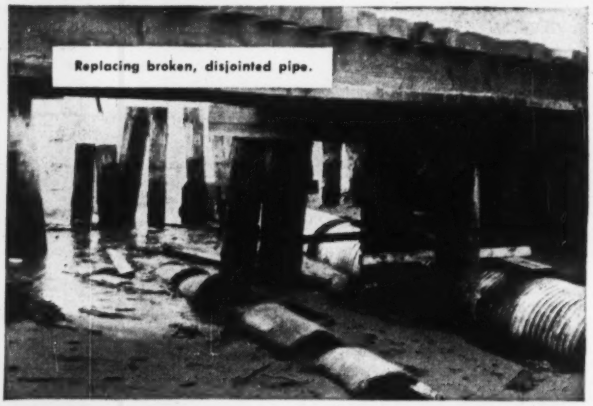
In most normal sewer installations the heavy galvanized coating on Armco Corrugated Metal Pipe provides ample protection. For severe corrosion there is Armco ASBESTOS-BONDED Pipe. Armco PAVED-INVERT Pipe will solve erosion hazards. All are available in diameters from 8 to 96 inches.

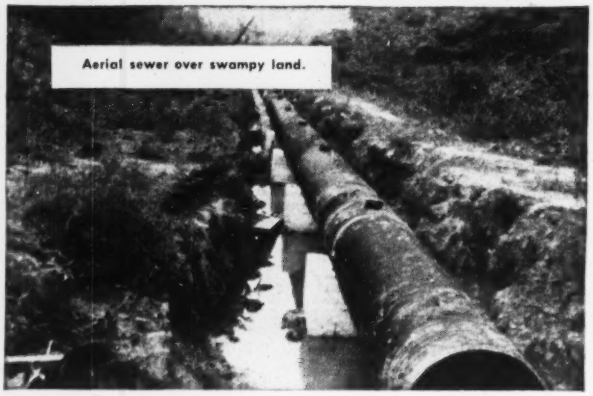
No matter what service conditions are encountered, there is a type of Armco Drainage Structure to meet exact requirements—economically. Write for details. Armco Drainage & Metal Products, Inc., 3413 Curtis St., Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ont. Export: The Armco International Corporation.

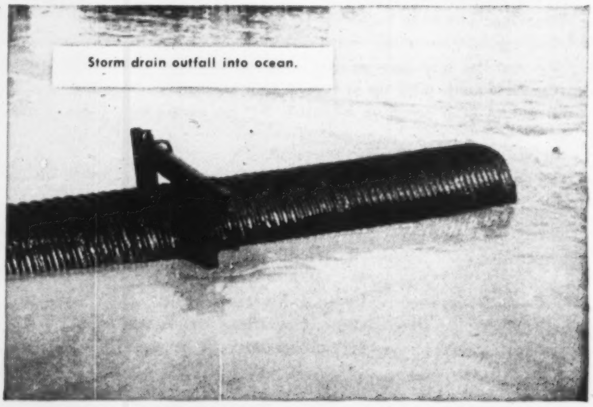
Armco Sewer Structures

ARMCO

In watery airport subgrade.


Replacing broken, disjointed pipe.


Aerial sewer over swampy land.


Storm drain outfall into ocean.

WASHINGTON OBSERVER

Both industrial and housing construction are hit by a tight money market and it may be some time yet before the market eases—or the government moves to loosen up the supply of credit (see page 85).

Government agencies are keeping their eyes on the situation. The Administration isn't ready to turn around on its hard money policy, but it has no intention of letting the market get any tighter, either. The Federal Reserve Board, for instance, plans to expand lending capacity of the banks to take care of seasonal demands for business loans—"but only in line with actual needs."

Tight money is threatening another round of aluminum expansion, too. Olin Industries and the Wheland (Tenn.) Co., are telling government that they can't get private credit cheap enough to go through with another 150,000-ton expansion. They're asking for government loan assistance. Wheland had planned to build near Chattanooga, Olin's probable site was Morgantown, W. Va.

•

Battle over Air Force cutbacks could hit construction. Opposition to the Eisenhower-Wilson cuts is growing. But it's too early to predict whether the Air Force-minded Republicans and Democrats can make the Administration ease off on the $5-billion reduction in the Air Force budget. However, if the pro-Air Force bloc succeeds in increasing the number of wings, it's bound to mean an increase in base and hangar construction that is required to house the larger force.

•

The ever-present wrangle between Interior and Congress over the authorization for the Eklutna, Alaska, hydro project is now up to Undersecretary Ralph Tudor. He's been in Alaska studying the situation first-hand—and House Committee Chairman A. L. Miller says his group will go along with whatever solution Tudor proposes that will let construction continue.

•

Power development at Niagara Falls is snarled up between private and public antagonists. Legislation seeking to award the development to five New York private companies is being opposed by New York's Governor Dewey, and New York's Democratic New Dealers, Sen. Lehman and Rep. Roosevelt. Dewey and the Democrats are set to meet to lay strategy.

Dewey wants New York to build the project. Though they have favored federal development, Lehman and Roosevelt now are willing to go along with Dewey in order to defeat the private development proposal.

•

Eisenhower's tough tax program is rousing a battle in Congress. Most congressmen and senators would like to see the Excess Profits Tax die the end of June—instead of voting to extend it six months. EPT is a brake on capital expansion—new plant construction.

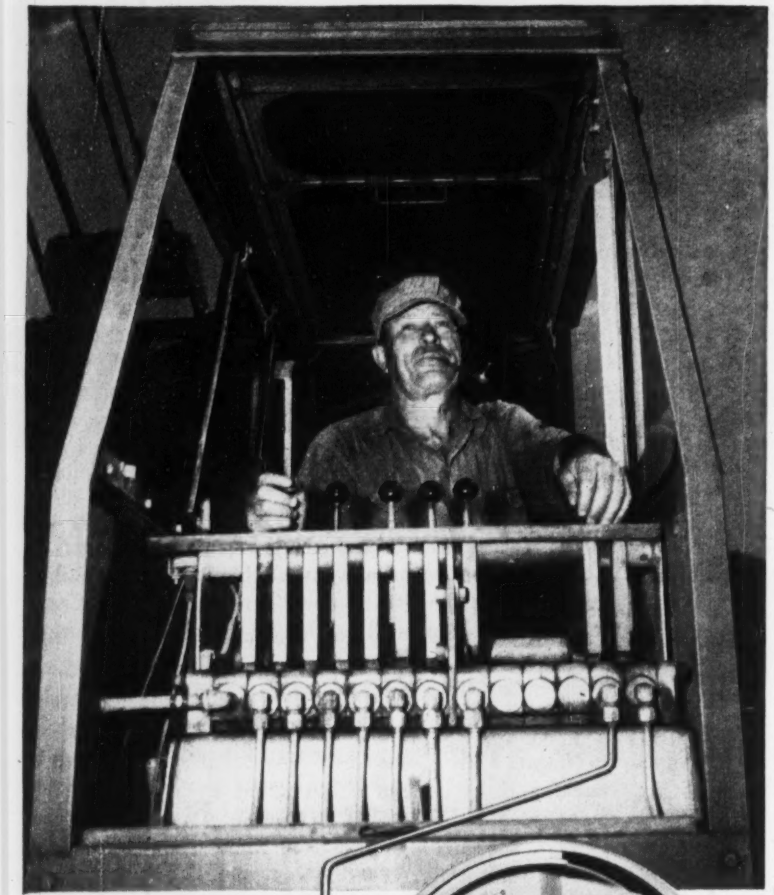
The House—not the Senate—is the key to the situation and right now it's a question of whether Speaker Martin can muster more support for higher taxes than Ways and Means Chairman Reed can get for tax reduction. This week, both sides were predicting a victory.

Eisenhower will take his case to the people via a speech-making tour. White House strategists are buoyed up by a mail response running eight to one for the President.

Excess Profits Tax can still be voted even if June 30 deadline isn't met. There's ample precedent for making it retroactive—thus eliminating any time gap between expiration of the present law and the proposed extension.

Before you buy:

COMPARE CLUTCHES!



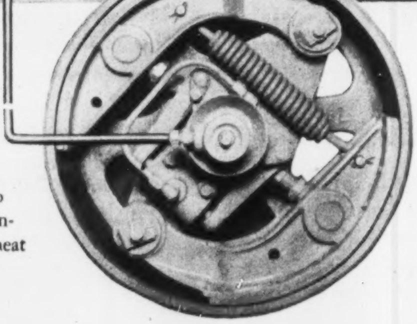
Link-Belt Speeder's hydraulic clutch needs fewer adjustments eliminates jerk, jump or lag

THE Speed-o-Matic power-driven hydraulic controls and clutch eliminate mechanical clutch linkage. This results in unequalled ease and speed of operation . . . smooth, instantly responsive action. You get longer lining life, freedom from frequent attention and far less chance for clutch failure.

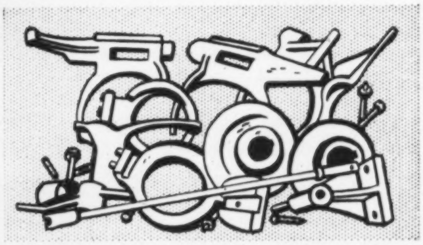
For details on the Speed-o-Matic clutch . . . information on the Link-Belt Speeder line of crawler, wheel or truck mounted shovel-cranes, write:

13,100

LINK-BELT SPEEDER CORPORATION
Cedar Rapids, Iowa



Speed-o-Matic Clutch shoes are actuated by perfectly controlled variable hydraulic pressure transmitted directly *into* the clutch. There are no mechanical linkages, no boosters. Clutch is self-compensating, automatically adjusts for heat and normal lining wear.



Eliminates up to 150 parts — there are no worn bushings, pins, links or clutch toggles to put you "down."

LINK-BELT SPEEDER
CORPORATION
BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

FACTORY-TRAINED DISTRIBUTOR SALES AND SERVICE SPECIALISTS *...EVERYWHERE*

House asked to deny funds for 44 Army Engineer jobs

Committee cuts the Administration's reduced requests by $78 million but resistance brews in Congress

The House Appropriations Committee has whacked a second slice off the 1954 request for Army civil functions. Coming after the Administration's big cut, the two slashes together left less than $400 million standing of the $660 million set up for rivers and harbors and flood control in Truman's January budget—a drop of nearly 40%.

The bill was to be acted on by the House this week.

Wiped out by the Appropriations Committee were requests for 24 projects. Adding the 20 previously denied by the Administration, the committee report rules out 44 projects and retains 54 on its list for construction funds in fiscal 1954. Among the projects dropped are all twelve new starts proposed by ex-President Truman.

• Some reluctant economies—Many a pet project fell before the economy knife. A restive House is likely to restore some of the cuts. Congressmen hate to see long-sought home projects held up. It took a three-hour session to get the committee to approve the bill. Some members voted to report the measure—but gave notice they would fight for funds on the floor.

And, of course, some of the cuts that hold intact through the House fight will be put back by the Senate. And the Senate will win its share of the arguments when the two versions of the bill get to conference for agreement on the final measure.

With all those allowances—the Appropriation Bill that finally passes Congress is going to be much smaller than Truman asked for. The 40% cut may be reduced to 30%, or maybe 25%, but new money for flood-control and rivers-and-harbors construction will be less than in any year since fiscal 1947.

• Carryover funds high—Practically all civil functions cuts come out of construction. The Administration slashed the original construction money request of $539 million by $169 million, reducing the figure to $370 million. From this amount, the committee lopped off another $78 million, bringing the construction request down to $292 million.

These reductions would not cut next year's construction expenditures in the same proportion. The Corps of Engineers expects to have a carryover of more than $260 million in unspent construction funds on June 30 the end of the current fiscal year. In reporting the Appropriation Bill, the committee explained that it had been able to make reductions by applying unexpended balances on individual projects. In other words, the committee expects the projects to keep on going on carryover funds plus the reduced additional expenditures.

• Some projects face year delay—But the program necessarily will be much smaller than Truman proposed. Construction spending under his budget in fiscal '54 had been estimated at $504 million. On the basis of the Eisenhower budget, with new starts eliminated and some jobs like Tuttle Creek and Table Rock stopped, the Corps of Engineers had estimated that it could spend $464 million on construction in 1954, through the use of unexpended balances.

But, if Congress should go along with the committee recommendation for a further cut of $78 million in 1954 construction funds, the spending next year would have to be held to less than $390 million. Some projects could move ahead on schedule, but many of them would have to slow down to fit decreased expenditures.

The same effect would be felt to lesser degree even under the Eisenhower budget, as explained to the committee by Army Undersecretary Earl D. Johnson. The Administration's cuts, he said, would lengthen the construction of some projects by a year or more, particularly several of the large multi-purpose dams, and would delay the scheduled dates for delivery of power. But for projects nearing completion, Johnson said, the Army aimed to follow the only sound procedure: complete them as fast as economical construction would permit. That purpose would be harder to carry out on the basis of committee reductions.

• Administration defends position—Johnson defended the Administration money requests as justifiable from all viewpoints. Lesser amounts, he said, would cause greatly increased cost, in the long run. He pointed out that the bulk of the 1954 expenditure will be on large projects that will continue their high rates on expenditure in 1955. In fact, Johnson made clear, the reductions in 1954 appropriations will have to be made up, to some extent, in the money voted a year from now for fiscal 1955.

The committee endorsed in full the Administration requests for only 24 construction projects. Among these approvals is $8.25 million for Oahe Dam, first excluded, later added.

• Reduce funds on 30 jobs—For 30 other projects, the committee recommended amounts less than asked by the Administration in its revised budget. These additional cuts, if they stick, could have the effect of further delaying construction and power delivery at eleven of the large multi-purpose projects being built by the Corps of Engineers.

Here are the eleven multi-purpose projects cut by the committee, with downward progression in millions of dollars requested first by Truman, second by the Eisenhower Administration, and third by the House Appropriations group:

The Dalles Lock and Dam on the Columbia, $58.4 to $37.43 to $29.25.

Garrison Dam on the Missouri, $39 to $31 to $27.

Fort Randall Dam on the Missouri, $22.7 to $14.7 to $11.

Gavins Point Dam on the Missouri, $17.8 to $12.1 to $10.

McNary Lock and Dam on the Columbia, $28.2 to $27.7 to $25.

Chief Joseph Dam on the Columbia, $30 to $25 to $23.

Albeni Falls Dam in Idaho, $7.7 to $7.2 to $6.

Buford Dam in Georgia, $9.1 to $8.5 to $5.

Jim Woodruff Lock and Dam in Florida and Georgia, $10.4 to $7.9 to $7.

Cheatham Lock and Dam on the Cumberland, $5.8 to $3.8 to $3.

Lookout Point Dam in Oregon, $20.4 to $20 to $18.

For six other multi-purpose projects, the committee approved money asked by the Administration. These projects, with Truman requests in millions of dollars revised downward or left unchanged by the Eisenhower revisions, are:

Oahe Dam on the Missouri, $18.4 cut to $8.25; Folsom Dam in California, $14.8 cut to $9.8; Old Hickory Lock and Dam on the Cumberland, $18 to $12.6; Tenkiller Ferry Dam in Oklahoma, $0.3 to $0.1; Clark Hill Dam in Georgia and South Carolina, $2.25, left uncut; and John H. Kerr Dam in Virginia and North Carolina, also left intact.

• **Flood control trimmed**—In striking out funds for 24 projects that the Administration had included in its budget, the committee singled out three for which it wanted the Army Engineers to obligate no money. These three banned projects are Coraville Dam in Iowa, navigation improvements on the Missouri between Kansas City and Sioux City, and flood protection works on Amazon Creek in Oregon. The committee did not bar use of available funds on other authorized projects omitted from its list of new money.

Seven flood control dams, approved for reduced amounts in the Administration budget, were cut to new low levels by the committee. In its report, the committee okayed these amounts for three California dams: Whittier Narrows, $5 million; Pine Flat, $2.9 million, and San Antonio, only $240,000. It also cut three Texas dams: Texarkana to $5 million; Garza-Little Elm to $3.25 million, and Belton to $750,000. Lucky Peak Dam in Idaho was reduced to $1.4 million.

Among local flood protection projects, the Los Angeles drainage area (exclusive of Whittier Narrows Dam) was cut to $6 million by the committee. Five other large jobs were reduced to $1 million each: the Oklahoma City floodway; also protective works at Vincennes, Ind.; Wichita and Valley Center, Kan.; Covington, Ky., and Maysville, Ky. for Williamsport, Pa., the committee sliced its recommendation to $700,000.

On flood control construction for the Mississippi River and its tributaries, the committee went along with the Eisenhower budget figure of $37.9 million.

This sum represents a reduction of $10 million from the original Truman request for $47.9 million.

Two multi-purpose projects included in the Administration budget were deleted completely from the committee list. Both are in Arkansas, at Blakely Mountain and Bull Shoals. Eisenhower's budget had approved $5.5 million for Blakely Mountain, out of $6.5 million asked by Truman, and had endorsed the full request of $2 million for Bull Shoals.

Two large navigation projects that the Administration had approved were omitted entirely from the committee's list.

They include Cleveland Harbor Bridge alterations, for which Truman asked $4 million and Eisenhower $3 million, and improvement of the Missouri River from Omaha to Sioux City, originally a $6.5-million request reduced to $2.5 million in the revised budget.

Pollution problems

$70.8 million in waste treatment plants needed in Missouri Basin states

The five downstream states of the Missouri River Basin need waste treatment facilities that would cost $70.8 million to control water pollution in the main stem of the Missouri River, according to a survey made public last week.

Missouri, which permits cities to discharge untreated sewage into the rivers, is listed as the worst of the five states in inadequacy of plants treating sewage and industrial wastes. It needs plant improvements costing $24.5 million as well as new legislation, it is reported.

The survey was made by state health departments of Missouri, Iowa, Kansas, Nebraska and South Dakota, with the help of the United States Public Health Service and other federal agencies.

A comprehensive program for control of water pollution in the lower Missouri basin should be carried out by the co-operating states, and funds sufficient to maintain adequate staffs for this purpose should be provided the report declared.

Investigators concluded that waste-treatment needs in the five-state area call for 115 new municipal and 63 industrial plants; 40 municipal and three industrial plants should be expanded; 23 municipal plants should be replaced.

Plans for Snake River dams ready

Idaho Power Co. is ready to undertake its proposed three-dam development of the Snake River in the 100-mi stretch of the river downstream from Weiser, Idaho.

The company last week filed applications with the Federal Power Commission for two of the dams and power plants. It had earlier filed an application for its Oxbow project on the Snake, and hearings are to resume July 7 on that application (ENR May 14, p. 23).

The company first announced its three-dam development plan last December but had applied for a federal license for only one of these—Oxbow—until last week.

Total estimated cost of the full company development plan is $134.3 million. Total installed capacity in the three power plants will be 772,400 kw. This compares with a cost of approximately $360 million and an installed capacity of some 900,000 kw for the Hell's Canyon project planned by the Bureau of Reclamation.

Applications for the two new projects differ slightly from earlier plans released for these projects.

The Brownlee project proposed by the company has an estimated cost $63.6 million and an installed capacity of 360,400 kw. This dam would have maximum height of 395 ft and would be approximately 1,700 ft long including the spillway. The reservoir would extend approximately 57½ mi upstream from the dam, with a top area estimated at 13,300 acres.

The Hell's Canyon project proposed by the company would cost an estimated $45.8 million and have an installed capacity of 272,000 kw. This dam would be about 320 ft high and approximately 1,100 ft long including the spillway.

Oxbow would cost about $24.9 million and have an installed capacity of 140,000 kw.

Seaway bill stays alive

U. S. participation in construction of the St. Lawrence Seaway project appears to be slowly progressing on two fronts—with the outcome still uncertain.

On the waterway portion of the project, a Senate Foreign Relations subcommittee this week was preparing a report favoring a joint venture with Canada. The report is almost sure to back the Wiley Bill, which would provide for a federal development corporation to issue revenue bonds for financing U. S. construction.

Majority of the House Public Works Committee is holding up action on that side of Congress until the Senate moves.

On the power project, opponents of the New York State plan to build the U. S. portion of the project are still holding their fire. Federal Power Commission examiner's decision to license construction by the state (ENR May 21, p. 26).

Industrial building awards fall off but still exceed last year's rate

Market remains strong as corporate financing sets new record; backlog of jobs continues to mount

Industrial building contracts in the last two months have been running at a lower level than in the strong first quarter. But, as the industry keeps planning and raising money for new plants and expansions, there could hardly be a slump in the making.

ENR reports show industrial contract awards averaged $36 million weekly over the last eight-week period as against an $85-million weekly average in the first quarter. Awards for the first quarter were up 50% over the same period last year. But, March and April returns dropped the increase to 12% for the 21-week period.

Contracts have been holding fairly steady at $30 million to $40 million per week over the last two months. Two factors indicate continued stability and a little more than likely upswing. They are: (1) Corporate financing is at an all-time high (see chart), and (2) proposed work is sustaining the backlog at a high level (see table).

• Capital investment zooms—Despite a rapid advance in yields on new corporate debt issues and the dip in stock prices, capital investment is setting a record. The sale of corporate securities to finance new construction has topped $1.7 billion over the first 21 weeks of this year. This is 1% over last year's record for the similar period.

Admittedly, public utility expansion accounts for a whopping portion of this new money for financing construction. But, there's a good cross-section of industry represented as well.

• Backlog builds up—Striking another note of optimism for industrial building is this fact: Projects proposed in the first four months of this year carried an estimated value of $1.7 billion—a sensational 117% increase over the estimated cost of proposals made in the corresponding period in '52.

As a result, the ENR backlog of industrial construction at the end of April stood at $11.1 billion. That's $1.8 billion above April '52 and $500 million better than December '52. (It's only slightly lower than the peak of $11.2 billion reached in March of this year.)

• Texas out in front—States between the Mississippi and the Rockies have the biggest backlog of industrial construction projects. And, Texas accounts for $2.2 billion of the $4.1-billion backlog in that area. Indeed, Texas tops all other states.

The backlog in this region also has been the fastest growing. It climbed $1.1 billion in the year ended this April.

The South and Far West, with project proposals amounting to $1.7 and $1.1 billion, respectively, each show an increase in their backlog of more than $300 million since April '52.

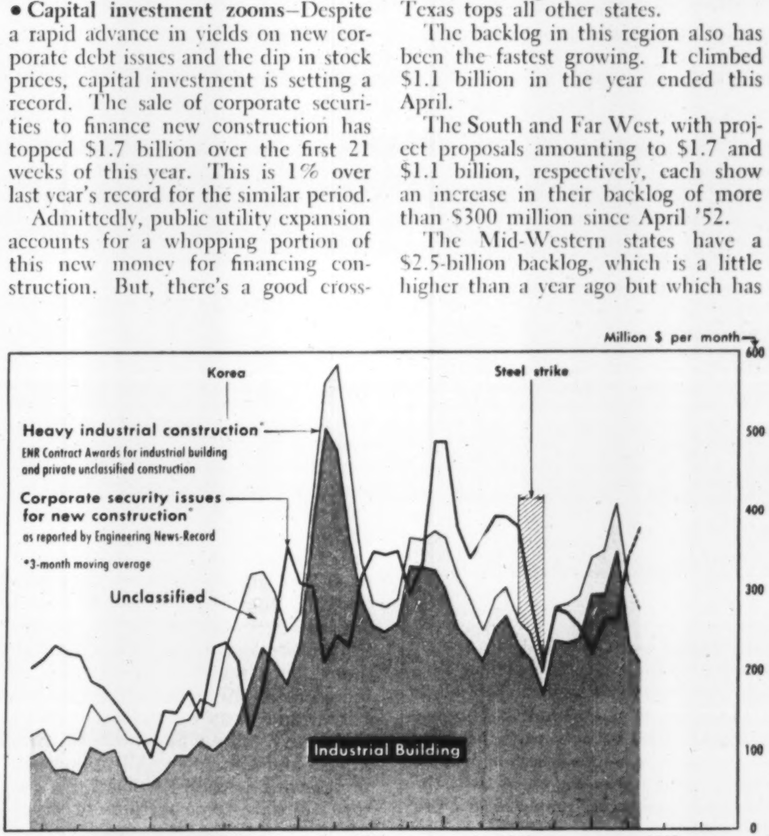
The Mid-Western states have a $2.5-billion backlog, which is a little higher than a year ago but which has been sinking slowly since the end of '52.

Contract awards for public utility construction in the first four months of this year amounted to $429 million, a threefold increase in volume over the same period last year. This included Indiana-Kentucky Electric Co.'s $280-million generating plant at Madison, Ind.

INDUSTRIAL BUILDING BACKLOG
(APRIL '53)
(in millions)

Region	Backlog	Increase (Over 1952)
U. S. Total	**$11,084**	**1,747**
New England	**178**	**237***
Middle Atlantic	**1,489**	**81**
South	**1,723**	**340**
Middle West	**2,475**	**135**
West of Mississippi	**4,123**	**1,104**
Far West	**1,096**	**324**

***Decrease**



• Chemical industry keeps going—Next biggest purchaser of new plant this year has been the chemical industry. It has let contracts totaling $399 million during the first four months. This is a little higher than in the 1952 period. That chemical plant construction is still going strong is significant in view of the fact that it accounted for more contract volume than any other industry in the years 1949-52.

Thus far, the food industry is another big feature in this year's industrial building picture. Contracts totaling $75 million have been let for 114 food processing plants around the country. This is more than four times the dollar volume of contracts let in the first four months of last year.

N. J. highway authority upheld on financing

The right of the New Jersey Highway Authority to issue $285 million in bonds backed by the state's credit to pay for construction of the Garden State Parkway was upheld by the state supreme court in a split decision this week.

Legality of the bond issue was challenged by a Cumberland County taxpayer, who contended the financing was an evasion of the state's debt limit. Five justices ruled in favor of the highway authority. Two wrote a dissenting opinion.

The Garden State Parkway, which will extend from near the New York state line in North Jersey to Cape May in South Jersey, is already under construction. Work was started by the state highway department before the authority was created last year.

California counters Arizona's claims to water under Colorado River pact

California has sent to the U.S. Supreme Court its answer to Arizona's request to the court that it settle the long-standing dispute between the two states over the amount of water each can divert from the Colorado River according to terms of the Colorado River Compact.

In its plea (ENR Aug. 21, 1952, p. 25), Arizona had asked the court to take jurisdiction in order to clear its title to part of the water allocated to the lower basin states (chiefly Arizona and California) under the compact. Thus, Arizona could proceed with plans to use water to which California also claims title. One use would be for the Central Arizona project, which Congress has refused to approve until the dispute is settled.

California's reply to the Arizona action was filed by State Attorney General Edmund G. Brown.

"The action of the State of Arizona in the original filing of its suit is welcomed by California," Attorney General Brown said, "because the eventual decree of the United States Supreme Court will clear the air for a better understanding between the two states.

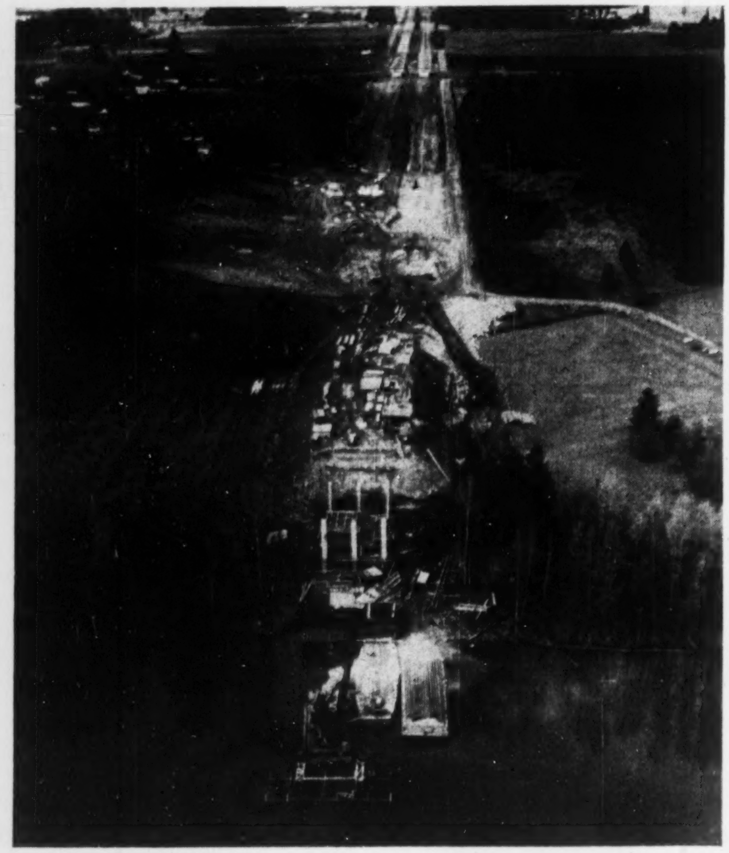
"We look forward to a final decision at the earliest possible date on the issues presented to the court. While the State of California entered into contracts with the federal government and exercised those contract rights to the water from the Colorado River, it still hopes to compose its differences with Arizona and to live as a friendly neighbor to a sister state. The destiny of the West is a challenge no state or its resources can meet alone."

California's plea to the Supreme Court is based not only on its contracts with the federal government for the delivery of 5,362,000 acre-ft annually, but on seniority of water rights, some of which have been established since 1877.

The answer recites the history of the Colorado River Compact and the Boulder Canyon Project Act and states that, because of Arizona's refusal in 1929 to ratify the compact, California was required to adopt an act limiting its use of Colorado River water in order to clear the way for the compact to become effective as a six-state agreement.

Although the six-state compact was made effective by presidential proclamation on June 25, 1929, the answer declares that Arizona took no action on the compact until some years later, on Feb. 24, 1944.

The answer points out that the California act limiting that state's use of Colorado River water became effective only because Arizona rejected the seven-state compact in 1929. Arizona is called upon to show how it can claim the benefits of the California limitation act and also be a party to the seven-state compact.



Bringing cities closer

Portland-Salem expressway moves another step toward completion with this stretch of four-lane highway construction. Substructure work for a new $1.6-million Willamette River bridge can be seen in the foreground. New sections of the controlled-access highway, which will shorten the road distance from Portland to Oregon's capital city from 52 to 47 mi, will fill gaps totaling 11 mi between parts that were built before the war curtailed the project. Eventually a terminal section will be built at the Portland end to speed traffic through the city. In the Salem area, the expressway will connect with a 10-mi $2.5-million by-pass to be completed in 1954.

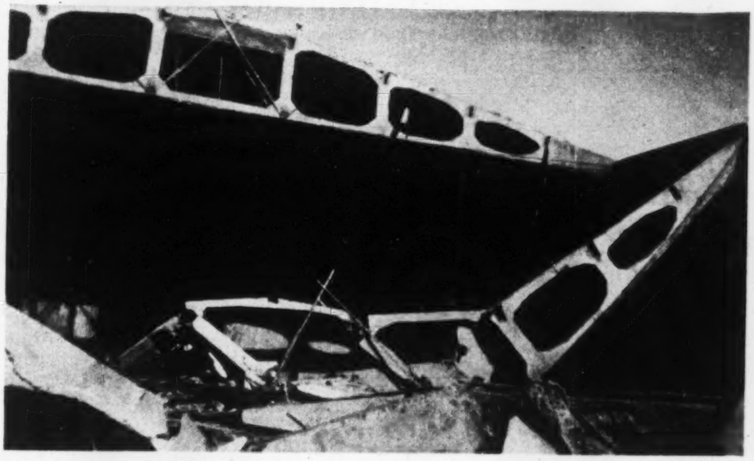
New Oklahoma turnpike has prosperous start

Oklahoma's $38-million, 88-mile Turner Turnpike—longest toll road west of the Mississippi—began operations several weeks ago as a real hit attraction.

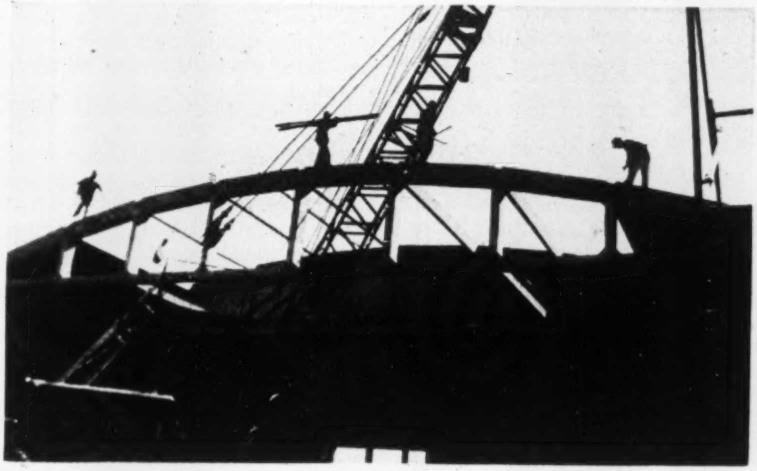
More than 20,000 vehicles, yielding about $24,000 in toll receipts, tried out the new highway linking Tulsa and Oklahoma City on the opening weekend, May 14-15. A daily average of 5,000 cars has been estimated as necessary to meet the project's financial obligations. The 88-mile trip costs $1.40.

The asphaltic concrete turnpike has two 24-ft roadways, with 12-ft stabilized bituminous shoulders and a grassed 15-ft median strip. A controlled-access highway, it has a maximum speed limit of 70 mph and a minimum of 40 mph.

Exit and entry points are at Tulsa, Oklahoma City, Sapulpa, Bristow, Stroud and Chandler. All paving and bridge work is completed but contractors still have some sections of shoulder work to complete.



CONCRETE ROOF TRUSSES with prestressed chords failed when partly loaded. Vierendeel trusses spanning 80 ft lacked a vertical member at midspan, required diagonal bracing there shortly after erection.



REDESIGNED TRUSSES are reinforced with high-bonded bars; have vertical member at midspan. Otherwise, general dimensions are the same as in original design.

Failure of warehouse trusses probed

California licensing board investigates charges that concrete roof members were improperly designed

Charges that improper design was responsible for failure of prestressed concrete Vierendeel trusses in a Lodi, Calif., warehouse are under investigation by the California State Board of Registration for Civil and Professional Engineers.

J. J. Polivka of Berkely, Calif., designer of the trusses, faces possible revocation or suspension of his civil engineer license, if the charges are substantiated. It marks the first time in the board's 24-year history that it has had to act on such a case. Polivka has had more than 40 years experience in research and consulting work both in the U. S. and abroad.

The probe is based on a complaint filed by H. W. Hansen of L. A. Hansen & Sons of Fresno, Calif., general contractor for construction of the reinforced concrete warehouse for the Community Grape Corp. of Lodi. Polivka was retained to make the design by Penner & Bollim, also of Fresno, subcontractors for the winery warehouse job.

The structure was about 90% complete last October when it collapsed. The accident occurred at night, so nobody was injured and there were no witnesses.

The trusses in question were 80 ft long of Vierendeel concrete type (these have no diagonals; members are designed to take bending stresses as well as direct stresses). Both top and bottom chords were prestressed with steel wires bonded to the concrete throughout their length. The 16-in.-wide bottom chord had ten ¼-in.-round wires stressed to 120,000 psi. The top chord had only four 1¼-in. wires. Some bar reinforcing also was included. The trusses had vertical members at various points across the span but not at the midpoint.

Some difficulty had been encountered with the trusses before the collapse. Additional wires had been placed on the bottom chords outside of the concrete. Diagonal steel straps had been added to reinforce the middle bay of the trusses.

Collapse occurred when part of the precast-concrete roof had been placed. Four trusses went down, leaving only one of the trusses erected in place. This was partly supported by timber shores.

The warehouse roof has since been rebuilt to the same general dimensions using a new design prepared by Mark M. Falk, San Francisco consulting structural engineer.

The new design generally followed the old to make maximum use of building elements already in place or cast—such as the precast purlins and roof slabs. But, it places a vertical element at mid-span. It also calls for high-bond reinforcing bars instead of prestressing wires. New trusses are some two tons heavier than the original ones.

Old structures suffered most tornado damage

Most buildings devasted by the tornado which struck Waco, Tex., killing 113 and injuring 500 others, were built under old, inadequate building codes. Eight months ago, the city adopted the model building code of the Southern Building Officials Conference, which will be adhered to rigidly in reconstruction and future new building.

Figuring largely in the $50-million damage were buildings dating back to 1890 or before, which were constructed of lime mortar, sand bricks, wood decks and joists. The worst disaster occurred in a building whose roof had been jacked up to provide two additional floors.

Reconstruction plans got off to a quick, decisive start in Waco, where a voluntary rebuilding committee, composed of architects, merchants and bankers, is devising a master plan for unified reconstruction of the business area. Provision for roof-top parking on the new buildings is one feature of the modernization program that is now being developed.

Still at odds

Raritan River factions find no agreement as upstream group's report is released

The upstream faction on a divided and polluted Raritan River unveiled its engineers' recommendation for an intra-county sewerage authority in Somerville, N. J., last week. A comparison of their proposal and the earlier proposal of the Middlesex County Sewerage Authority for an inter-county trunk sewer was drawn.

Before comparing costs, engineers for the Somerset County Citizens Committee on Water Supply and Pollution noted that about 55% would have to be added to annual charges estimated earlier by Middlesex County consultants. They had included no impounding reservoir, deemed necessary to low-flow regulation by Somerset County; they had figured on a 2¾% interest rate instead of a "more realistic minimum" of 3½% used by Somerset; they had planned to retire no bonds during the first 5 years of a 40-year issue, making higher annual charges to be spread out over the remaining 35 years.

Comparing the plans on "an equal basis," annual charges to Somerset communities and industries appear to aggregate about 25% higher for the valley-wide trunk sewer than they would for the Somerset County plan.

Sheppard T. Powell and Witman, Requardt and Associates had presented the Somerset plan May 5. With this report in hand, the Somerset County citizens group adopted a resolution reaffirming its opinion that a regional authority appointed by the governor might be the best solution. But seeing no such solution possible in the near future, it recommended: Prompt organization of a county sewerage authority, and prepration and execution of a fair service contract to carry out the proposed plan.

The plan includes a $7.75-million investment in reservoir, trunk sewer and treatment plant to provide complete (secondary) treatment of 28 mgd before its return to the Raritan for re-use. The $227,000 cost per mgd of capacity completely treated is compared with a cost of $463,000 per mgd capacity for primary treatment, chlorination and dispersion into salt water, with no compensating water facilities, in the original Middlesex County Sewerage Authority plan for a $30-million project which was designed to handle 65 mgd.

While people of Somerset County were left to reflect on the findings of their engineers last week the Middlesex Authority was plugging away at its task of signing participants into its independent $22.5-million project.

At week's end all but one industry and three communities of a possible 21 participants were in line. New Brunswick, largest city involved, was still on the fence and still the key factor in settling whether or not the Middlesex plan will become a construction job.

Toll road study authorized

The Michigan legislature has authorized Gov. G. Mennen Williams to appoint a four-member turnpike authority, which will include State Highway Commissioner Charles M. Ziegler. Under a $500,000 grant from the State Highway Department, the new authority will survey proposals for a toll route out of Detroit for Chicago and another for Toledo, continuing northward 105 mi to Bay City. Once the feasibility of either project is agreed upon, the turnpike body is empowered to sell bonds and begin construction. The study is expected to take eight months.

Rappahannock bridge

The Virginia State Highway Department is preparing for construction of a $13.5 million toll span across Rappahannock River between Grey's Point and Whitestone, near the mouth of the river. It has contracted with Modjeski & Masters of Harrisburg, Pa., for engineering services. Bids for construction of approach trestles are scheduled to be advertised July 1. September 1, 1954, has been set as a tentative date for receiving bids for revenue bonds to finance the project.

Road materials test

A detailed comparison of portland cement and asphaltic concrete paving will be made on a 4-mi section of Oklahoma highway.

The test, authorized by a state legislative act, is to provide the State Highway Department with construction and maintenance cost data. A 40-member committee, including 10 state legislators, will be appointed to evaluate the results and report to the legislature regularly.

Tentative plans call for laying the test road, each side to be surfaced by one of the two materials from Witcher, at the west end of the Turner Turnpike north to Bradbury corner at the intersection of U. S. 66 and U. S. 77. This section is favored for the test because both sides of the highway have about an equally heavy traffic load and similar soil conditions.

Niagara Falls

New regulatory works proposed to improve distribution of flow

Construction of additional regulatory works above Niagara Falls to obtain better distribution of the flow is proposed by the International Joint Commission in a report just filed with the U. S. Department of State and the Canadian Department of External Affairs.

This report was called for under the 1950 treaty between the two countries setting up new regulations relating to the use of waters of the Niagara River.

The new projects would be a continuation of work done between 1942 and 1947 to permit increased diversions of water for power for national defense and increase the flow over the American Falls. That project consisted of building a submerged weir which was located about one mile above the Horseshoe Falls.

Now proposed are three additional undertakings:

(a) Construction of a structure to control the level of the Chippewa-Grass Island pool. It would be built 225 ft downstream from the existing weir and would extend 1,550 ft out into the river. The structure would consist of piers together with movable gates.

(b) An excavation in the Horseshoe Cascade lying immediately upstream from the Canadian flank of the Horseshoe Falls, and a crest fill on that flank which would be about 100 ft in length.

(c) Another excavation in the Horseshoe Cascade immediately upstream from the Goat Island flank of the Horseshoe Falls and a crest fill on that flank which would extend approximately 300 ft.

The control structure is estimated to cost $14,594,000, and the excavations and fills, $1,582,000 and $1,360,000, respectively.

Immediate start on the work is recommended so that it can be completed before Canada is ready to put its new power plant into service. Without these new facilities, that plant could not be put into full service without cutting the flow over the falls below the minimum set in the 1950 treaty.

The commission also proposes establishment of a control board to supervise the operation of the control structure. One of the chief functions of this board would be to make certain that diversions for power do not reduce the flow over the falls below the minimum set in the treaty.

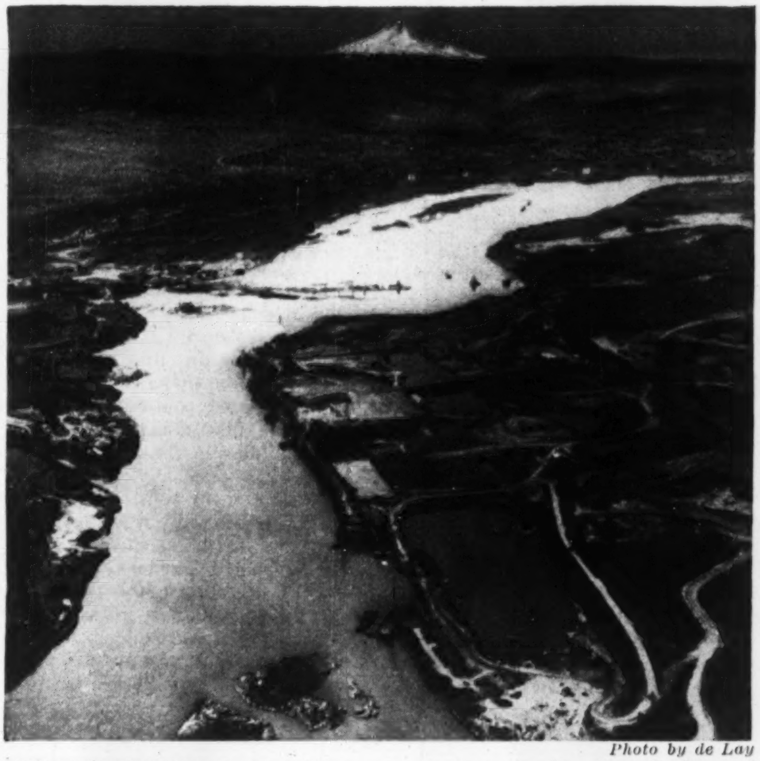


Photo by de Lay

THE DALLES DAM site, viewed from upriver, shows the diversion cofferdam and powerhouse excavation on the right bank (Washington side) of Columbia River. Visible just beyond the bend of the river is construction for Wasco (Ore.) County's $3.5-million toll bridge, a project of the Atkinson-Ostrander firms which are also engaged in the second phase dam construction. Oregon's Mt. Hood can be seen in the background with the city of The Dalles, just below.

Columbia River project moves foward

Low bid on substructure work at The Dalles Dam figures $6.4 million below government estimate

Construction will be stepped up on The Dalles Dam project on the Columbia River as a result of bids having been opened last week covering powerhouse substructure and assembly bay. Nine construction companies of Minnesota, Iowa and Montana combined to submit the low bid of $29.8 million—$6.4 million under the government estimate.

Bids for this third phase of the Corps of Engineers $350-million project originally were called in February for April 1 opening, but were postponed while the Defense Department reviewed the request for funds as required by the Budget Bureau.

Already crews of S. A. Healy Co., White Plains, N. Y., which holds the initial $4.8-million contract, and Guy F. Atkinson Co., and Ostrander Construction Co., which jointly hold a $14.4-million contract, have changed the topography of the Washington bank of the project site. These firms expect to complete excavation for spillways, tailgates and approach channel by November.

Joining in the low bid for the third phase construction were: Winston Brothers Co., Minneapolis; McLaughlin Inc. Great Falls, Mont.; F & S Contracting Co., Butte, Mont.; Johnson, Drake & Piper Co., Inc., Minneapolis; Donovan Construction Co., St. Paul; C. F. Lytle Co., Sioux City, Iowa; S. Birch & Sons Construction Co., Great Falls; Foley Brothers, St. Paul; and Fegles Construction Co. Ltd., Minneapolis.

Baldwin-Lima Hamilton holds a $19.9-million contract for building turbines, the largest single order for hydraulic equipment ever placed by the government or a private hydroelectric dam builder. The Dalles is scheduled to have initial installed capacity of 1,222,000 kw and the first two generators are to be turning in November, 1957.

Spending slowdown

Massachusetts puts brake on road contract awards

The pace at which Massachusetts has been carrying forward a multimillion dollar highway construction program has been slowed down considerably as a result of the change in administration last January.

Of $353 million available for expenditure in 1953-55, only $26.6 million has been marked for commitment thus far. And, of this sum, only $16.4 million is for projects scheduled to start this year.

Though in favor of fulfilling the ambitious road building undertaking, Gov. Christian Herter has applied the brakes to contract awards in order that projects initiated by the previous regime may be examined in detail.

Review of the many projects in various stages of planning and development got a late start because the new state highway commissioner, John A. Volpe, head of the Boston construction firm of that name, did not take over his duties until early in March.

Last year contract awards amounted to some $60 million and in 1951 the figure was $80 million.

Since 1948, Massachusetts has authorized $600 million in bond issues for highway building. Of this amount, $200 million in bonds will be issued by the newly created toll road authority.

This agency, headed by the previous state highway commisisoner, William F. Callahan, is authorized to build a new highway across the state from Boston to the New York state border. It looks as though the project faces a considerable delay, however, because of forthcoming hearings on route details. Strong objections have been raised by several suburban communities on the west side of Boston to various features of two alternate route proposals.

Toll highway approved

Construction of the Connecticut $200-million plus cross-state toll highway has been approved by the state legislature. The project includes the Fairfield County Thruway, a relocation of Route 1, connecting with the New York State Thruway at Greenwich and running to West Haven; and an extension through eastern Connecticut to Killingley at the Rhode Island border. The measure, signed by Gov. John Lodge last week, provides for use of gas taxes in the event that toll receipts are insufficient to amortize the bonds.

Exemption killed

Senate Labor Committee proposes T-H changes similar to S. 1973 of 1952

Any chance of exempting the construction industry from the Taft-Hartley labor law is dead. Instead, Congress is likely to pass something like the Taft-Humphrey bill that passed the Senate just a year ago. That is, if any Taft-Hartley amendments get through this session.

This has happened:

Sen. H. Alexander Smith of New Jersey, Chairman of the Senate Labor Committee, has given up on the bill (S. 1785) he introduced on April 28 exempting construction from the federal labor statute. Too much opposition to it:

Contractors were concerned about being left without protection against secondary boycotts.

The AFL Building and Construction Trades Department wasn't too keen for this move because the closed shop restrictions in 13 states would still apply (ENR May 7, p. 28).

And the AFL proper, the CIO, John L. Lewis of the United Mine Workers and other union sources were downright opposed to the exemption because it gave special treatment to one branch of organized labor.

- **Revision**—A "staff committee print" of a revised Taft-Hartley law, prepared for Republican members of the Senate Labor Committee, contains Taft's 1953 version of the Taft-Humphrey bill.

This would let contractors make pre-job agreements with unions without bargaining elections and force workers to join the union after seven instead of the usual 30 days, as S. 1972 which passed the Senate did last year. But Sen. Robert A. Taft made this change: He would not set aside for the construction industry the Taft-Hartley provision which lets state "right to work" laws prohibiting compulsory unionism take precedence over Taft-Hartley in the 13 states where they exist. The version did set aside those laws so that building trades unions could make union shop agreements in those states.

The AFL building trades favor the original version which passed the Senate.

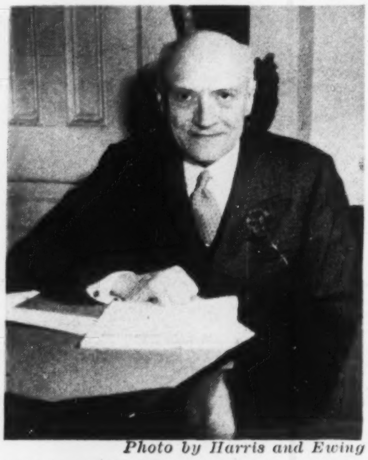


Photo by Harris and Ewing

SEN. H. ALEXANDER SMITH (R.-N.J.) dropped exemption for construction

The Building Trades Executive Council passed a resolution to that effect this week and sent a committee to the AFL Executive Council—then in session—to seek its support. The AFL Executive Council gave its support and a letter to that effect was going to be sent to Senate and House Labor Committees by AFL President George Meany.

The "staff committee print" also would drop the mandatory feature of the secondary boycott injunction, making it discretionary on the part of the National Labor Relations Board to seek an injunction in secondary boycott situations. That is not surprising, because Taft himself has expressed himself in favor of this.

What is surprising, however, is that the committee print knocks out the section under which NLRB decides jurisdictional disputes. This section was largely responsible for the construction industry and the building trades setting up the Jurisdictional Joint Board in 1948.

However, the "staff committee print" is not supposed to be indicative of what the committee majority has in mind.

Sen. Smith explained that it is just a "working paper" for discussion purposes.

The Republican members of the committee have not committed themselves to any of the provisions contained in the print. In fact, some will be opposed outright. Notably a section which would extend the non-Communist affidavit to employers as well as union leaders. Taft and others already have said this would be meaningless in combating communism in labor unions.

Strike picture

St. Louis, Youngstown jobs are latest to be struck by wage-seeking union men

Transportation of building materials in the St. Louis area was halted last week by a strike of 1,200 AFL truck drivers in a wage dispute with contractors and building material firms.

If the walkout continues, it is expected that all commercial and residential building in the area will shut down.

Projects now in construction total about $75 million, it was estimated by Henry S. Till, Jr., executive secretary of the Associated General Contractors.

The strike is against 30 building material firms, and two associations—AGC and the Home Builders Assn.

Pickets were posted at material yards and plants, but not on construction jobs.

Other building crafts continued working and presumably will remain on the job as long as materials are available.

A union committee negotiating with the dealers had demanded an increase of 25 cents an hour, six paid holidays, longer vacations and changes in working conditions. The materials firms had offered an increase of 7½ cents an hour above the $2.12½ paid under a contract which expired April 30.

The AGC offered 10 cents an hour above the old scale of $1.90. The union demanded an increase of 15 cents an hour, plus 5 cents an hour for "heavy hauling."

A spokesman for the Home Builders said that the drivers had demanded an increase of 32½ cents and were offered 7½ cents. The old scale for the group was $1.85.

- **Youngstown, Ohio**—More than $2.5 million worth of major construction was halted by a walkout of five AFL building trades unions which has idled about 1,500 workers.

All the walkouts involve union demands for pay measures about 12½ cents an hour.

Largest union in the walkout is the laborers' union.

Four of the 19 building crafts, including carpenters, plumbers, electricians and painters, have already signed new contracts. A building trades spokesman explained that the 1953 pattern is a 12½-cent boost for major crafts and 7½ cents for others.

What Do American Highway Officials Think of RUBBER ROADS?

A recent independent survey of American Highway Officials in regard to their attitudes toward rubber roads produced some impressive and significant responses.

Citing "rubber" as the most important new development in highway surfacing, city and town highway engineers pointed to "longer wear and life" as the chief advantage of rubber-asphalt roads, and 72% of them said that if funds were available, they would recommend the laying of a test rubber road in their locality.

Most impressive of all — *one-third* of all the highway officials are already convinced that the addition of rubber to asphalt paving will become a *standard* method of highway construction.

To *prove* the value of rubber roads in stretching the highway dollar, highway engineers from coast to coast are laying test strips of natural rubber roads this year in their communities. It is possible to "pave a block" with natural rubber-asphalt top surfacing for an added cost of less than $500 for the average block. Such tests will prove to the local highway engineer just how much he can save on repairs and maintenance over a period of years by adding natural rubber powder to the asphalt top surfacing of his roads.

Write for a copy of this interesting survey showing in detail what the American highway engineer thinks of rubber roads.

Natural Rubber Bureau
1631 K Street, N. W., Washington 6, D. C.
Natural Rubber Bureau Research Laboratory, Rosslyn, Virginia

Natural Rubber Bureau
1631 K Street, N. W., Washington 6, D. C.

Please send me . . .

☐ Copy of new survey report on rubber roads.

☐ Copy of booklet "Stretching Highway Dollars with Rubber Roads."

☐ Information about laying a test road of natural rubber-asphalt paving.

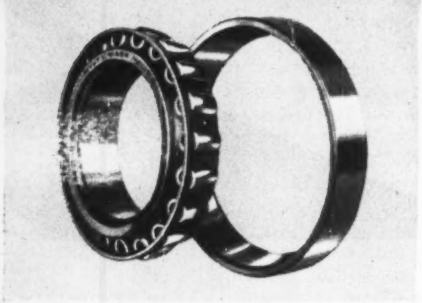
Name ....

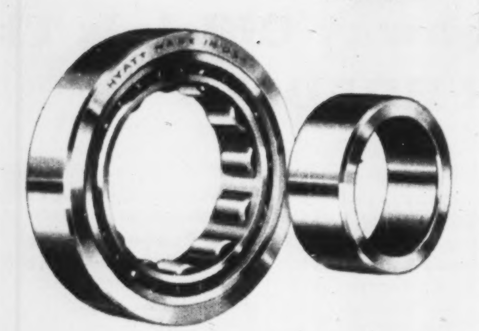
Title ....

Street ....

City .... State ....

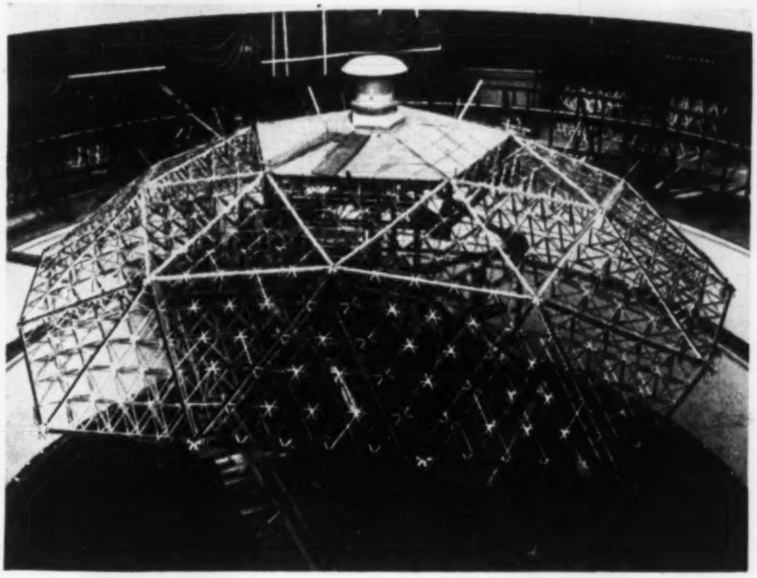
Engineered for the BIG loads!





In trucks . . . tractors . . . power shovels . . . graders . . . rollers . . . in every type of construction equipment that's engineered to take the daily punishment of heavy loads and rough terrain—that's where you'll find Hyatt Roller Bearings! For Hyatts, too, are engineered for the biggest jobs and the heaviest loads, and they're performance-proved to last longer at peak operating efficiency. Builders of construction equipment—like so many manufacturers in every phase of industry, agriculture and transportation—recognize that the Hyatt name stands for highest bearing quality. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS



UMBRELLA-LIKE, the aluminum frame of the dome over the inner court of the Ford Rotunda, Dearborn, Mich., was built out from a central mast.

Dome built on rotating jig

Prefabrication and a clever cantilever method of construction greatly simplified erection of a hemispherical, trussed dome made of more than 21,000 light-gage aluminum members. The dome spans 93 ft over the inner court of the Ford Rotunda, in Dearborn, Mich.

The gateway to the Ford Motor Co. Rouge plant, the building has just been remodeled for exhibits, as part of the observance of the company's 50th anniversary. (The 110-ft high structure was built in 1934 for the Chicago World's Fair and later moved to Dearborn.)

Prior to the remodeling, the inner court of the building had no roof. Since it is now desirable that exhibits be displayed in all kinds of weather, Ford officials decided to have the court roofed. But they wanted an impressive ceiling, in keeping with the rest of the attractive interior designed by the W. B. Ford Design Corp., Detroit. A dome seemed to fit the requirement.

• Lightweight construction—To minimize the load on the existing structure, aluminum was selected for the structural frame of the dome. With most members only 0.04 in. thick, the total weight of the frame is about 8.5 tons. (The designer claims a conventional steel structure the same size would weigh 160 tons.)

Further to keep weight down, and also to admit light, the exterior of the dome is covered with a translucent, polyester-resin plastic reinforced with glass fibers. Only 0.04 in. thick, this covering weighs about 0.4 psf. Original plans called for a suspended ceiling, but a later decision eliminated it.

The dome trusses are made of 24S-T3 aluminum alloy, which was given a very thin integral facing of pure aluminum to prevent corrosion. Web and chord members were joined by cold-riveting with 5/32-in. dia 17S-T4 aluminum alloy rivets. The trusses were connected by stainless steel bolts.

• Trusses are space frames—Assembly of the dome commenced with the fastening together of struts in groups of three to form triangles. Next, three triangles were joined together with three struts to produce an octahedron, a three-dimensional frame with eight triangular faces and six vertices.

INTERIOR DOME climaxes a series of circles within circles forming the rotunda.

In turn, ten of these octahedrons were connected together to make a three-dimensional truss. In plan, this space frame was approximately an equilateral triangle with 14-ft sides. (The plastic outer covering was assembled in triangular sheets to fit these triangular trusses.) Finally, 160 such trusses were bolted together to form the dome.

• Components—Basic elements in this scheme are the 0.04-in. thick angle struts, of which almost 20,000 were required. About 3 ft long, they weigh ⅓ lb apiece. Two types were supplied—a 70-deg angle for the horizontal tops and bottoms of the octahedrons, and a 110-deg angle for the vertical legs of these space frames. Sides of both types were ribbed for added strength.

A second important element is a six-arm aluminum hub that weighs about 5 lb. It was used at the intersections of vertices of the triangular trusses. A total of 91 hubs were needed.

Still another major element is the channel-shape chord, or spine, that spans between hubs, along the sides of the triangular trusses. Made of extruded aluminum, these units are 13 ft long and weigh 30 lb apiece; 250 were required.

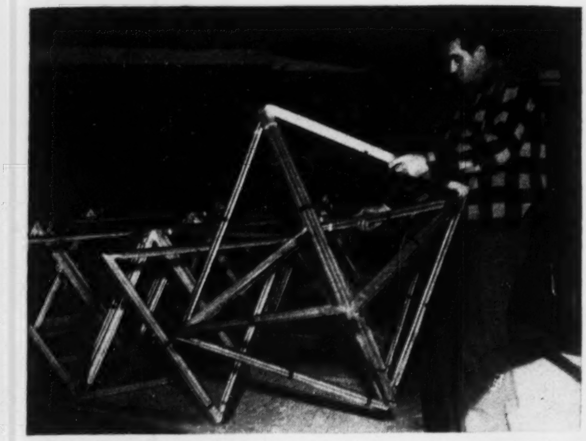
• Assembly made easy—Struts came to the job color-coded for ease in identifying and assembling. Workers merely had to match colors; no calculation, layout or cutting and fitting were needed at the site.

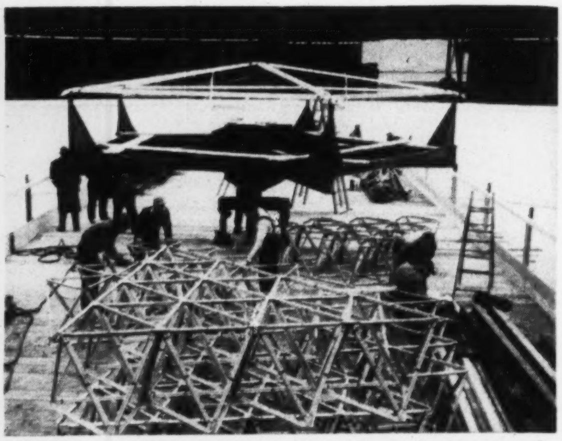
Parts were assembled on the rotunda roof around the perimeter of the inner court. There, jigs were set up on tables to simplify the work. Since the finished product—the triangular trusses—weighed only 57 lb apiece, the workmen had no difficulty in moving them to the erection site.

To erect the dome, the contractor built a steel-angle scaffold at the center of the court, up to the level of the dome base, 60 ft above the floor. At the top, he laid down a 30-ft wide wood platform along a diameter of the circular opening. A short run of steps connected the platform with the surrounding roof.

• Rotating jig—To enable the workmen to erect the dome from this platform, a cantilever method of construction was worked out by Ford's plant engineering office. Like an umbrella, the framework was built out from a central mast that could be rotated as trusses were added.

With the dome supported at the



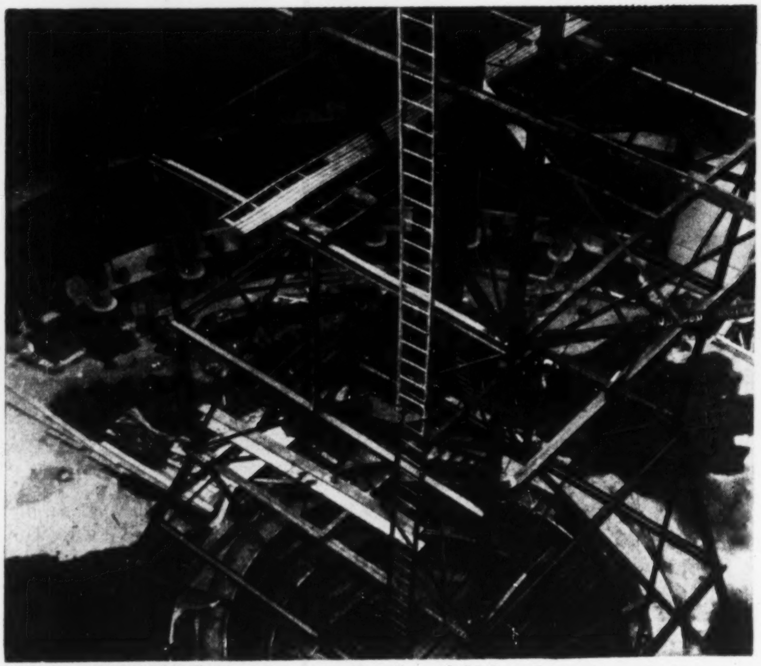


OCTAHEDRON composed of three triangles joined by three struts (left) is the basic building block of which the triangular trusses (right) were made. These trusses were assembled on a rotating jig (behind the trusses) to form the dome.

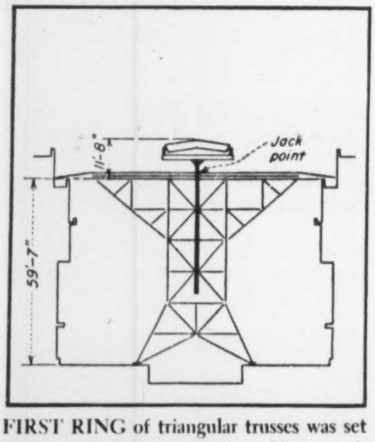
crown, successive circular rings, or collars, were erected from the platform. After each collar was completed, the mast was jacked up to make room for the next collar. The last ring of trusses was set with the outer sides resting on prepared steel supports on the court walls. A power ventilator was installed at the crown.

When the framing was completed, the plastic roof covering was fastened in place over it. Finally, an arched ladder was installed for emergency repairs, if needed. Hinged at the dome crown, it rolls around the dome enabling workmen to reach any point of the surface. When not needed, it can be retracted, so as not to block out daylight.

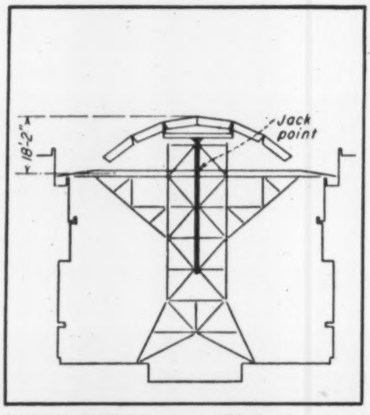
The dome was designed by R. Buckminster Fuller and associates, for whom George Welsh is project representative. Laucomer and Manser, Detroit, were the structural engineers. J. Brodie & Son, Inc., Oak Park, Mich., erected the dome. For the Ford Motor Co., J. A. MacAlarney is director of the Plant Engineering Office, and Frank J. McKenna is resident engineer.



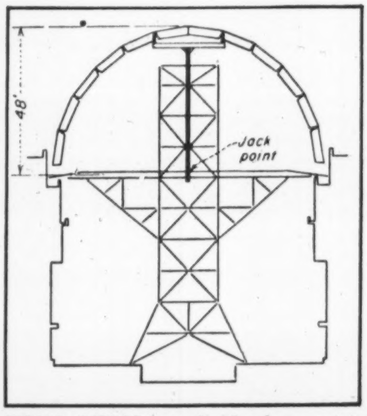
STEEL SCAFFOLDING supports rotating jig and 30-ft wide working platform.



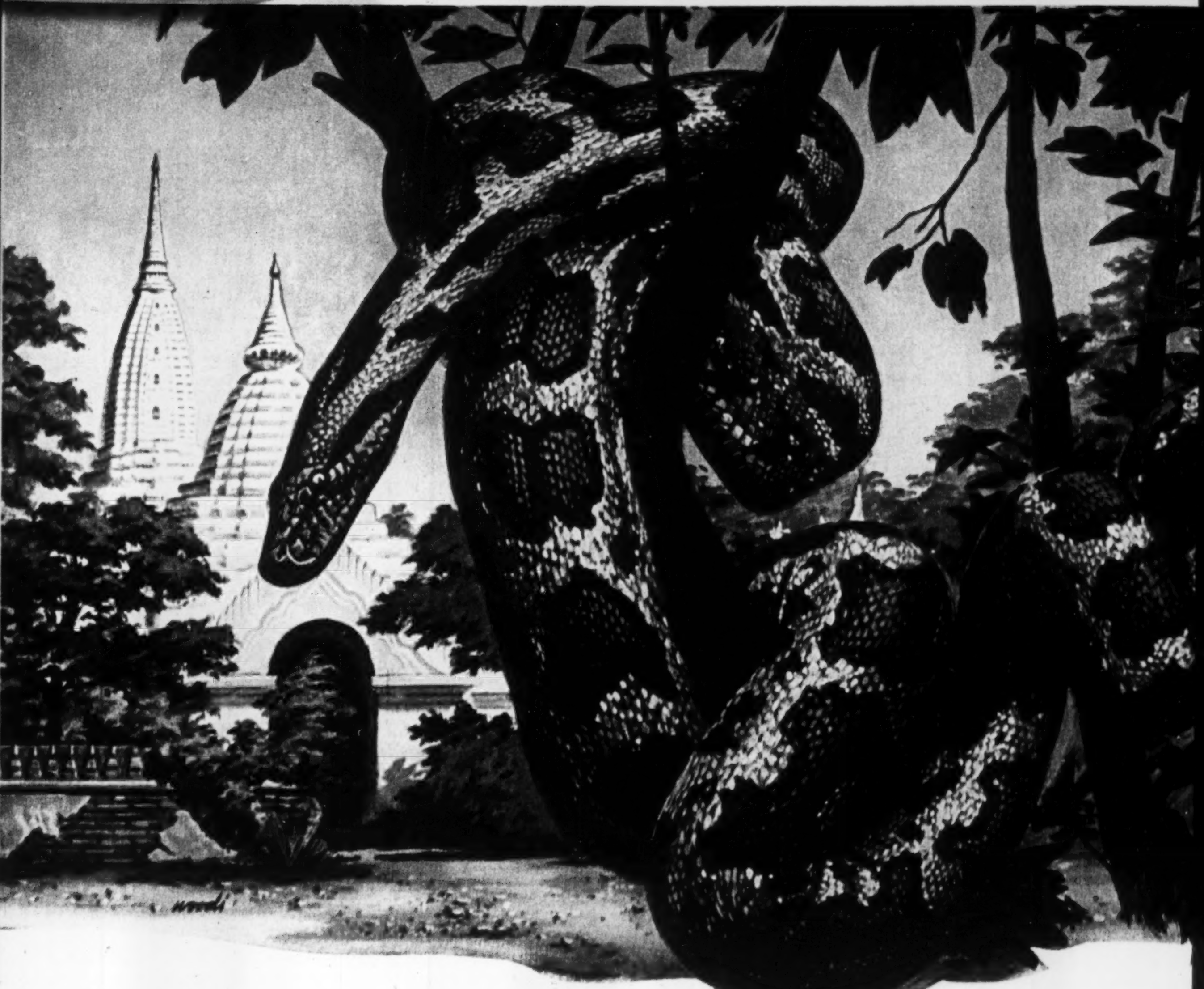
FIRST RING of triangular trusses was set on top of the rotating jig. Then . . .



MORE RINGS were added after mast was jacked up and scaffolding extended . . .



FINAL RINGS brought the dome out to prepared supports on court walls.



in WIRE ROPE, too, survival calls for the RIGHT KIND of muscle

Powerful, constrictive muscles give the python the crushing strength that enables him to exist under the grim rules of jungle law—where only the fittest survive.

Same way with wire rope. Here again, ability to last under adverse conditions demands the right kind of muscle. Bending Fatigue . . . Shock Stress . . . Abrasion . . . Load Strain—each demands wire rope that best combines the required resistance factors to overcome the destructive forces encountered in different types of service.

Complete quality control from ore to finished rope; long experience and specialized know-how – these are your assurance that in Wickwire Rope you always get the right construction . . . the right grade of steel and size of wire for long-lasting reliable service on your particular job.

See your Wickwire Rope distributor or contact our nearest sales office.

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
THE CALIFORNIA WIRE CLOTH CORPORATION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

WICKWIRE ROPE
A
CF&I PRODUCT

A YELLOW TRIANGLE
ON THE REEL IDENTIFIES
WICKWIRE ROPE

WICKWIRE ROPE
CF&I
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

9584

A secure foundation

for future-minded builders

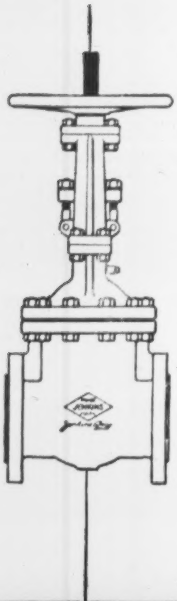
The famous Diamond and Signature trade mark on Jenkins Valves has merited the continuing trust of the nation's foremost builders since 1864.

On this symbol they know they can build with confidence that future, as well as present operating costs will be the lowest possible.

Jenkins builds *extra* endurance into valves . . . proved by low maintenance cost records in every type of service. Yet despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy.
Jenkins Bros., 100 Park Ave., New York 17.

JENKINS VALVES

SOLD THROUGH LEADING INDUSTRIAL DISTRIBUTORS



TRADE
JENKINS
MARK

Jenkins Bros

Where composting stands

West Coast consultant analyzes age-old waste handling process as method of both recovery and disposal

Speaking at the recent Fifth Annual Pacific Northwest Industrial Waste Conference in Pullman, Wash., Richard R. Kennedy of the San Francisco firm of Clyde C. Kennedy, had this to say about composting:

"Unfortunately we have made less progress in solving the mechanical problems of composting than we have in understanding the biochemical process. Successful composting is simply a problem of material handling."

(Mr. Kennedy's contention seems substantiated by recent troubles in making the Frazer-Eweson process work at Bay Shore, N. Y. [ENR Apr. 23, p. 24].)

On the biochemistry of composting, Kennedy told the audience at State College of Washington that "while it may well be that there is some beneficial effect from special and secret cultures . . . the fact is that such inoculum is readily available in the soil, in drainage from compost piles, and even simply from the waste material itself."

(The "secret" cultures referred to would include those said to be necessary to the Compost Corporation of America process as devised by E. E. Pfeiffer and practiced at Oakland, Calif. For more information see [ENR June 26, 1952, p. 44].)

• **Still little gold in garbage**—It has not yet been proved that composting can be justified on the basis of waste recovery alone, but experimental studies indicate that net cost of composting may often be less than alternate methods of disposal, Kennedy said. He finds encouragement in current uses of composting for reducing cost of waste disposal.

"We now recognize the factors involved in the composting process," continued Kennedy. "They are aeration, time, moisture, particle size, temperature and chemical composition. P. H. McGauhey and C. G. Golveke recently have completed an analytical study at the University of California (soon to be published) in which they conclude that composting proceeds most efficiently in moist aerobic conditions. Anaerobic composting takes longer and forms more odors.

"Time it takes to complete composting is dependent to an extent on chemical composition—more specifically, the carbon-nitrogen ratio. In the composting process, says Kennedy, the C/N ratio is reduced from about 70 to 1 to 10 or 20 to 1. U.S. municipal garbage, if properly segregated and ground, will compost in only a few days because of its relatively high percentage of nitrogenous matter."

• **Organic vs. inorganic**—Lime to control acidity may be necessary in composting. And addition of inorganic chemical fertilizers to speed the process—sacrilege to organic farming enthusiasts—makes sense to Mr. Kennedy.

"Chemical fertilizers will be used, and indeed must be used, in order to meet the expanding food needs of the world," he said. Added inorganic nitrogen, phosphorus and potassium have their place in composting.

• **How to**—In composting by piling, University of California investigators see 40 to 60% as the optimum moisture range. Particle size must permit rapid movement of organisms through the mass. Piles must be big enough to retain heat; yet small enough to prevent compaction. Turning and mixing to keep aerobic conditions must be at about 3-day intervals. Temperatures will control themselves to a large extent—quickly reaching the pasteurization range of 140 to 160 deg F, then falling to 120 to 130 deg F in the finished compost. Stabilization should take place in 10 to 20 days, then the material can be piled high to await final processing, Kennedy said.

Calling upon engineers to use the same considerations in choosing a garbage disposal method that would apply to sewage disposal design, he stressed that "it is seldom possible . . . . to reach up on the shelf and take down a ready-made process." The combination of unit operations in garbage disposal must be chosen by the engineer in light of many factors—including available market for recovered wastes.

• **Economics**—In no case where composting is used for recovery of wastes (mostly abroad) is it profitable as a recovery process. It is justified simply in many of these applications because of higher priced inorganic fertilizers, said Kennedy.

However, in the U. S. any recovery undertaking must produce a fertilizer at a cost comparable with the cost of an equal amount of chemical fertilizers. And he sees no immediate hope of this. He reports that a recent visit to the Oakland operation found it "practically abandoned."

"The difficulty appears to be that the garbage, after processing, was actually 'golden' in comparison with the cost of chemical fertilizers."

Mr. Kennedy's consulting firm has been working since 1948 with pilot plant investigations into possibilities of nitrogen fixation. Mr. Kennedy sees fixation of atmospheric nitrogen as one means of making composting economically feasible, if some practicable means can be found.

Composting as a means of reducing net disposal costs is seen by Kennedy as having special possibilities in industrial wastes, where homogeneity is an advantage.

In municipal operations, he believes it should be considered that recovered materials might be a partial credit against total cost of disposal. Milwaukee's Milorganite from sewage sludge does no more than reap income applied against the cost of its processing.

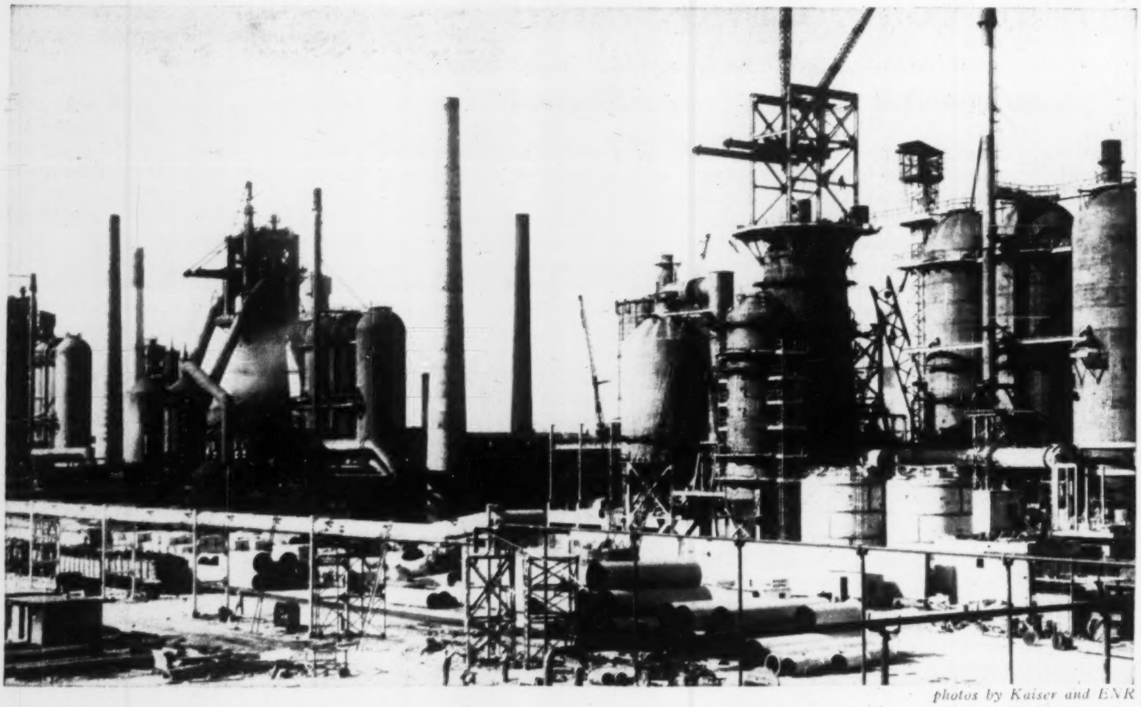
Industrial or municipal waste recovery must in every case be considered against comparative costs of other acceptable methods. Costs in California for landfill range from \$0.33 to \$1.57 per ton; for incineration, \$2 to \$4 per ton; and University of California investigators put composting costs at \$9 to \$10 per ton of raw refuse. Thus, concludes Kennedy, a return of \$6 to \$10 per ton of raw refuse must be obtained from sale of compost (exclusive of sales costs) if composting is to be complete. Assuming compost might command at least the \$18 to \$24 price now received for dried and ground sewage sludge in Southern California, he sees a possible net return of \$9 to \$12 per ton and thus calls composting worth considering along with other waste disposal methods.

Army Engineers study St. Louis flood control

Army Engineers are drafting a proposed \$75-million flood protection plan for St. Louis, which would provide a system of levees, flood walls, pumping stations and sewers to extend along 14 mi of the Mississippi River frontage.

According to the plan, the federal government would defray \$70 million of the construction cost and local interests would pay the remainder and also maintenance and operating expenses.

Col. Fred E. Ressegieu, St. Louis district Army Engineer, says the plan proposes works to protect three of five reaches covering the 24-mi riverfront from Jefferson Barracks north to the mouth of the Missouri River. The area thus protected would total 3,600 acres.



photos by Kaiser and ENR

$65-million steel plant expansion nears completion on West Coast

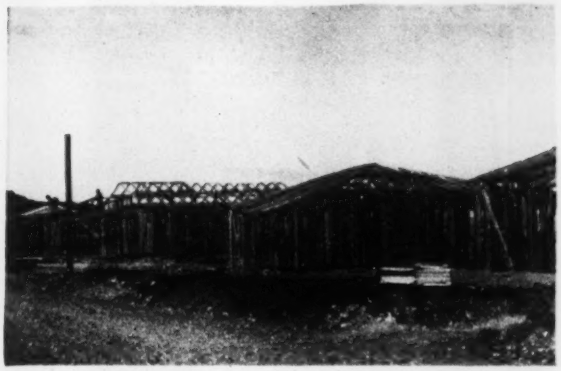
Kaiser's California plant and mine will form completely integrated operation from raw ore to finished steel

Only blast furnaces on the West Coast are these three at Kaiser's Fontana, Calif., plant. Completion of the third unit, part of the $65-million Kaiser Steel expansion program, will raise plant capacity to 1,314,000 tons of pig iron per year. Other additions under the expansion program include a ninth open hearth furnace, initially operated in January, 90 new coke ovens and a tin mill. First operation of the third blast furnace is scheduled for the middle of this month.

FOUNDATION POUR for blast furnace saw a 2321-cu yd mass placed in 12 hours. Monolithic construction of the heavily reinforced mass was specified for earthquake resistance by Kaiser Engineers who are designing and building the new facilities. Four batch plants delivered their entire output to 46 truck mixers for the duration of the pour.

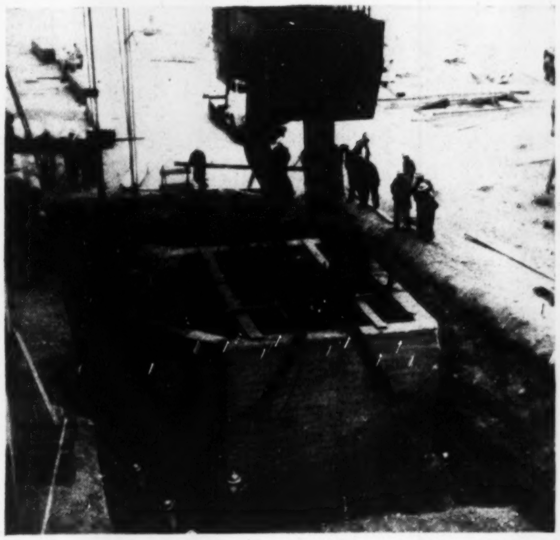
BUCYRUS ERIE
150-B

IRON ORE IS MINED for transport to crushing facilities. This new ore deposit at Kaiser's Eagle Mountain, Calif., mine was opened to satisfy increased demand at Fontana mill.

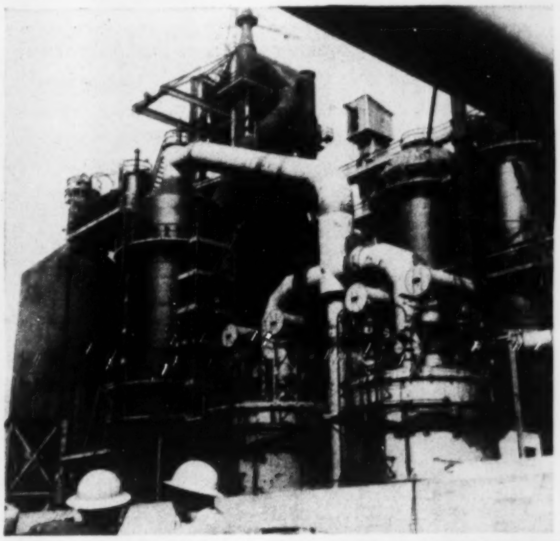


NEW HOMES are built at isolated iron mine to house additional employees for increased operations. Expansion includes 96 homes, new sewage treatment and water supply facilities.

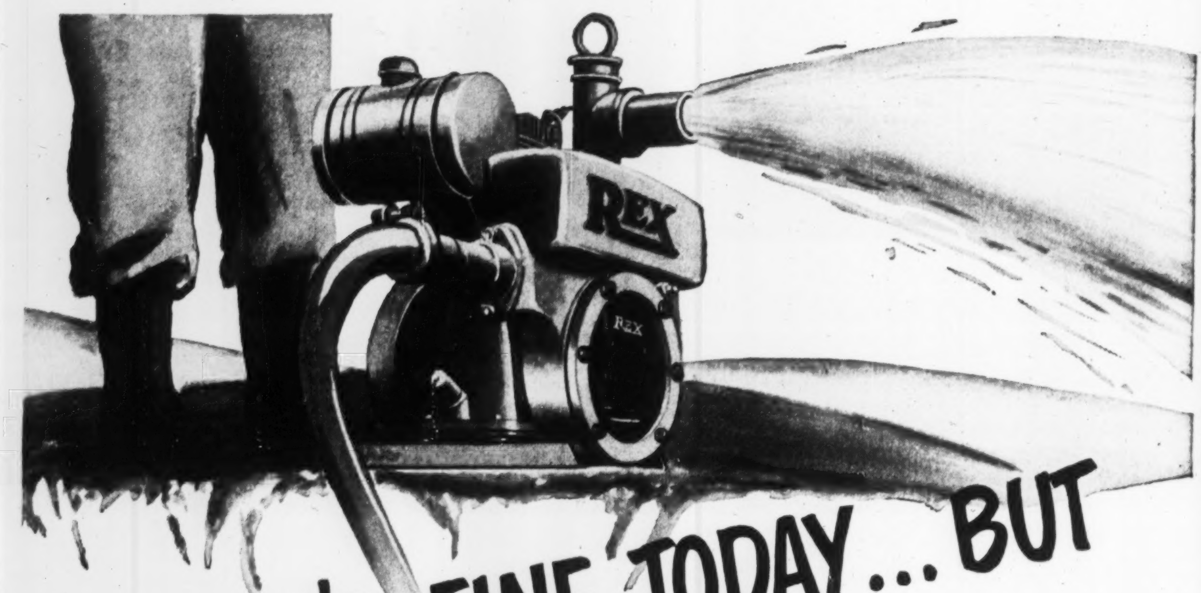
IRON MINE, 164 rail miles away from steel plant in southern California desert area, is also being expanded as part of the $65-million program. Under construction in the foreground is a beneficiation plant which will improve quality and regulate size of ore to be shipped to Fontana. Mine makes Kaiser Steel a completely integrated operation from raw ore to finished steel product.



CRANE PLACES CONCRETE MASS as part of open hearth construction. Kaiser Engineers found it cheaper to move existing 210-ton ladle lining pit than to build a new one.



THIRD BLAST FURNACE under construction, was scheduled to start operation this month, and is the major element in the $65-million Kaiser expansion program under way at Fontana.



PUMP'S FINE TODAY ... BUT HOW ABOUT TOMORROW?

With Rex and only Rex

You're assured new pump efficiency for the lifetime of the pump because . . .

ONLY REX HAS THE ADJUSTABLE AIR PEELER!

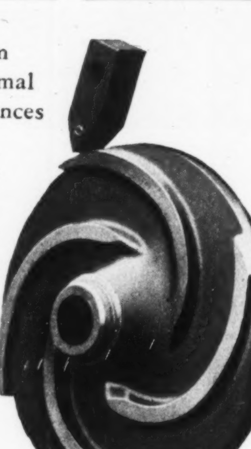
Every self-priming, centrifugal pump must have an air peeler to remove air from the suction line and create the vacuum that draws water up to the impeller. Normal wear on the peeler and fast-moving impeller destroys the necessary close clearances between these parts . . . reducing both priming and pumping efficiency.

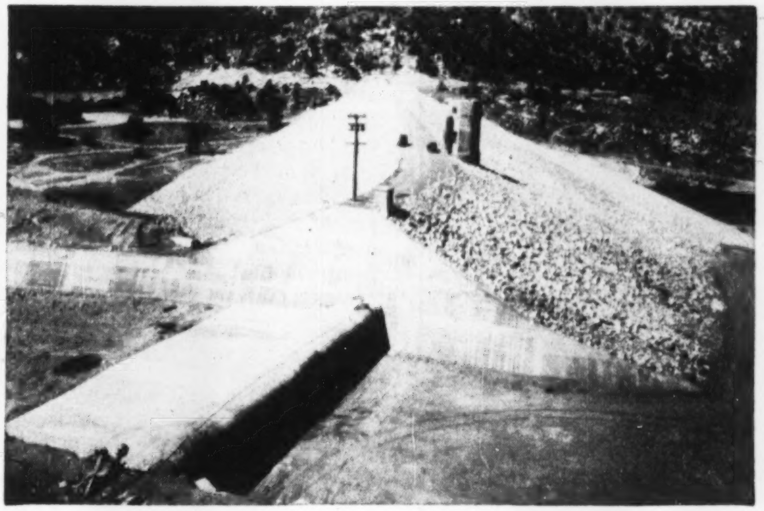
Here's where *Rex alone* can maintain original priming and pumping efficiency for life. A simple adjustment of the *exclusive Patented Adjustable Air Peeler* and you've restored its original close clearance with the impeller. Just a twist of the wrist and you've restored new pump efficiency . . . for today . . . and tomorrow.

Get all the details on this and other exclusive Rex features from your local Rex distributor or write to Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY ®

CONSTRUCTION MACHINERY





Kern River storage dam completed

Fast work by the team of Macco Corporation, Morrison-Knudsen Company, Inc., and River Construction Corp. resulted in completion of the Isabella Dam on the Kern River in California's lower San Joaquin Valley one year ahead of schedule.

The prime contractors began moving earth on two 9-hour shifts one year and three months ago. (Officially, work on this Corps of Engineers project began in March, 1948, but early appropriations were small and permitted only minor progress.)

The main contract figure was $6.46 million. The total cost of the dam reached $6.78 million.

The project consists of two dams: An auxiliary structure across Hot Springs Valley and a main dam across the Kern River itself.

The auxiliary dam is 3,325 ft in length and reaches a maximum height of 100 ft. Its embankment contains 1,800,000 cu yd of material, mostly compacted decomposed granite, covered by filter blankets of sand and gravel with cobble and rock riprap.

The main dam is a rock and earth structure with a crest length of 1,725 ft and a height of 185 ft above stream bed. Width at the base is 1,140 ft, tapering to a uniform crest width of 20 ft. The embankment contains 2,900,000 cu yds of material consisting of an impervious core, random fill, filter blankets of sand and gravel and cobble and rock riprap.

• Granite use noted—Army Engineer spokesmen commented that an interesting feature at Isabella and on all other dams along the Sierra front now under construction or likely to be built is the use of decomposed granite in embankments.

Unlike other western mountains, the Sierra range long ago lost most of the sedimentary clays and the underlying granite was exposed and in turn weathered. This material can be found in abundance in shallow blanket along the foothill line.

Through test fills, it was found that the granite could be scooped up cheaply by power equipment and rolled to suitable densities.

At Isabella, nature had stockpiled a whole hill of decomposed granite. Undisturbed in the hill, a load of this material took up a space of 14 cu yds. When this same load was dumped and compacted into the dam, the material takes up only 11.6 cu yds.

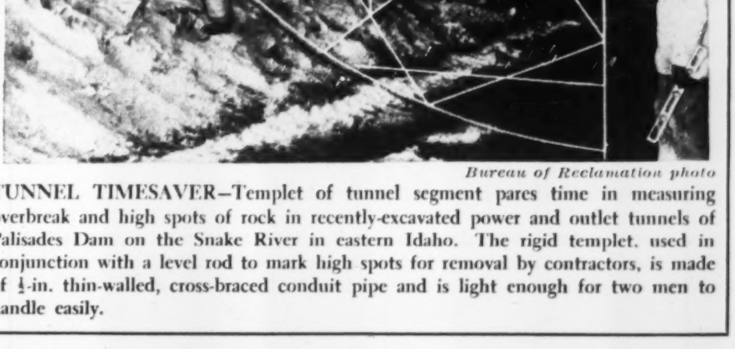
Isabella Dam, first conceived in 1931, is designed to skim the peak off the high spring flow of the Kern River and store up to 500,000 acre ft of water for release later in the season. There is no power in connection with the project.

Construction of the dam has forced the abandonment of two towns, Isabella and Kernville. A new town of Kernville has taken shape a few miles upstream out of the reservoir area. Many residents of Isabella, forced to leave their homes, had to rebuild at a new site just below the dam.

Isabella Dam was constructed under the direction of the Corps' Sacramento district office in Sacramento. H. J. Dickinson was project engineer.

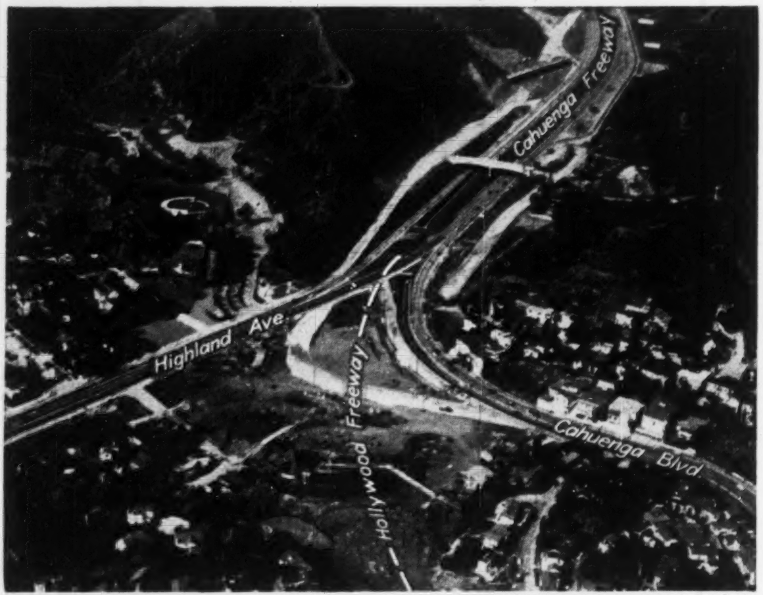
• Tunnel outlet—Normally, except for the continuing operation of the Boral Canal (property of the Southern California Edison Co.) all releases from the reservoir will be made through a tunnel under the main dam. This tunnel is about 900 ft long, drilled through solid rock, and concrete lined with an inside diameter of 14 ft, 9 in. The release is controlled by three hydraulically operated slide gates. There is a standby set of identical gates and a standby diesel-electric power unit.

The Boral Canal flows through the center of the auxiliary dam. This canal will continue to function as though there were no dam at all. A gated twin barrel conduit will be operated so that the Southern California Edison Co. will continue to use its Boral Power Plant with the same flows as before—up to 600 cfs. Modifications of the canal in the reservoir area will permit this operation regardless of the elevation of the pool behind the dam.



Bureau of Reclamation photo

TUNNEL TIMESAVER—Templet of tunnel segment pares time in measuring overbreak and high spots of rock in recently-excavated power and outlet tunnels of Palisades Dam on the Snake River in eastern Idaho. The rigid templet, used in conjunction with a level rod to mark high spots for removal by contractors, is made of ½-in. thin-walled, cross-braced conduit pipe and is light enough for two men to handle easily.



Southwest Builders & Contractor photo

FREEWAY CONSTRUCTION in Hollywood requires detouring cars from Cahuenga Freeway (upper right) while a new connection to it is built. First stage detours are being built (center). Underpass under Highland Ave. coming in from left will be removed. Famed Hollywood Bowl is at upper left.

Detour handles 100,000 cars

What is said to be the most complicated detouring problem in the world is currently being met and solved in Hollywood, Calif. It involves building a freeway—and detouring 100,000 cars a day over the construction area. The traffic volume is an actual count—not the supercolossal exaggeration of king-size superlatives.

The scene is the connection of the existing Cahuenga Freeway with the new Hollywood Freeway. The roadway runs through a relatively narrow valley that prevents construction of bypass detours. (Cahuenga Freeway, completed before World War II, will be an extension of Hollywood Freeway. On completion of the interchange in 1954, the name Cahuenga Freeway will be dropped.)

At present, the Cahuenga Freeway, coming in from the north, splits into Highland Ave. and Cahuenga Blvd. Southbound traffic from Cahuenga Freeway to Cahuenga Blvd. is carried through an underpass that separates it from northbound traffic from Highland Ave. to Cahuenga Freeway. The present construction will transform the Cahuenga Freeway-Cahuenga Blvd.-Highland Ave. intersection to a continuous Hollywood Freeway development with off and on ramps for Highland Ave. Cahuenga Blvd. will become a local service road.

A recent 16-hour (6 am to 10 pm) Monday traffic count showed 59,000 cars on Cahuenga Blvd. and 43,000 cars on Highland Ave. Thus, the freeway peak was well in excess of 102,000 cars for that period. Maximum hour occurred between 5 and 6 pm with over 10,000 cars handled. Sunday traffic at this point totaled 73,000 cars with a 6,000 hourly peak.

• Planning—The detouring (see illustrations) was carefully planned as to lane positions and sequence by engineers of the California Division of Highways. It was made a part of the construction plans and specifications because, in postwar freeway construction, engineers have learned that mere stipulation of number of lanes of traffic to be free to move through a construction operation is inadequate. These lessons have been learned the hard way because much of the California freeway construction is in congested areas with large volumes of existing traffic.

There are other complicated freeway detouring problems currently under construction in Los Angeles. One is at the intersection of Alameda and Aliso Streets in the central industrial area. Here 100,000 cars cross at grade at a signal-controlled intersection and a rail line complicates the situation. Aliso St. is being depressed under the rail line and Alameda St. and will become part of the Santa Ana Freeway.

Another tricky job is connecting the Arroyo Seco Parkway into the Harbor Freeway just north of the main business district. All overpass structures have been built. But the grade must be lowered 22 ft while 54,000 cars a day traverse the work. Detour instructions involving five steps are shown on one blueprint sheet.

In all of these cases, state engineers have developed step-by-step procedures for handling traffic. But they are not hard and fast. In the course of actual construction, it may well be that the contractor will develop procedures that are, in his opinion, better than the detouring plans specified. If the contractor can convince the state engineers that a change in plans is advantageous, the alternate procedures will be adopted. In other words, the detouring plans adopted by the state for a particular job can be modified. But, it has been found to be of primary importance to have carefully worked out plans to follow.

• Completion in 1954—All of the work outlined on the foregoing will be completed by early 1954. Also scheduled for full completion at that time is the first mile of the Harbor Freeway that bypasses the heart of downtown Los Angeles. Thus, by that time, the freeway net in the downtown parts of the city will be completed except for a short connection with the Aliso St. bridge. It will permit full use of all four decks and interchange ramps of the famed four-level grade separation.

In the meantime, construction is being pushed on parts of the Ramona, Santa Ana, Harbor and Los Angeles River Freeways. And detailed planning is under way for more of these routes as well as others. The $30-million annual freeway spending rate for the metropolitan area is sure to continue for some time (ENR April 17, 1952, p. 64). It may well be increased by California's 1953 legislature.

All of the state highway work of which these freeways are a part is under the direction of G. T. McCoy, state highway engineer. Paul O. Harding is assistant state highway engineer in charge of District VII that includes this freeway work.

Construction of the Cahuenga-Hollywood Freeway connection is part of a $2,274,000-contract held by the Bongivanni Construction Co. of Los Angeles. Included in the job are 1.4 miles of freeway, 3 bridges and 11 retaining walls.

The Alameda-Aliso St. intersection work is a $1,223,000-contract held by Peterson & Baker of Los Angeles. It includes ¼ mile of freeway, a railroad overcrossing and a highway underpass.

The Arroyo Seco connection is a $480,000-project involving 0.4 mile of freeway with J. E. Haddock, Ltd., of Pasadena as contractor.

Three stages of the detour program developed for the new Cahuenga-Hollywood Freeway connection

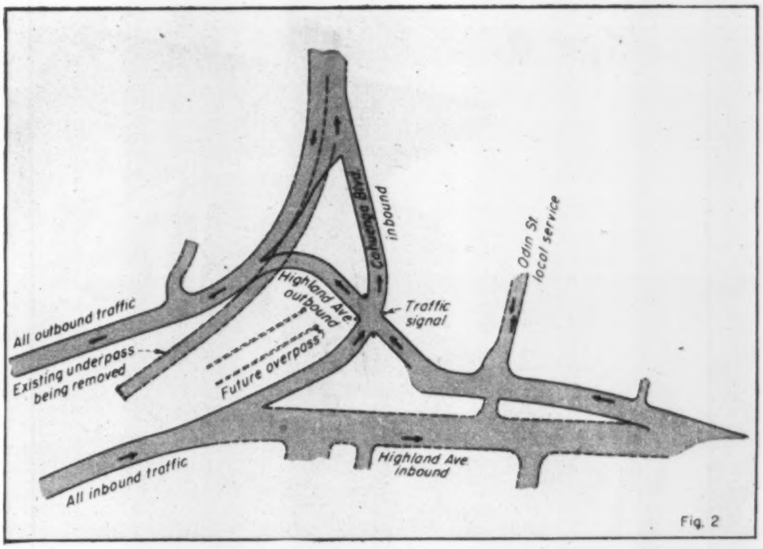

All outbound traffic
Existing underpass being removed
Future overpass
Highland Ave outbound
Cahuenga Blvd. inbound
Traffic signal
Odin St local service
All inbound traffic
Highland Ave inbound

Fig. 2

FIRST STAGE DETOUR has Cahuenga Blvd. inbound traffic and Highland Ave. outbound traffic cross at a signal-controlled intersection. This permits removal of old underpass and construction of a new one. Future frontage roads are used for all traffic inbound from and outbound to Cahuenga Freeway.

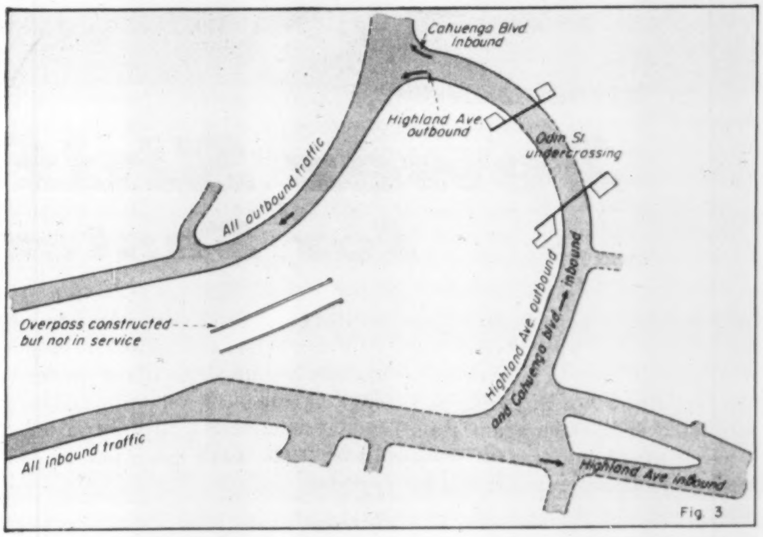

Cahuenga Blvd inbound
Highland Ave outbound
Odin St undercrossing
All outbound traffic
Overpass constructed but not in service
Highland Ave outbound and Cahuenga Blvd inbound
All inbound traffic
Highland Ave inbound

Fig. 3

SECOND STAGE DETOUR mixes Cahuenga Blvd. inbound traffic with Highland Ave. outbound traffic and takes both through the Odin St. undercrossing. This allows the new Hollywood Freeway to be built over this mixed traffic.

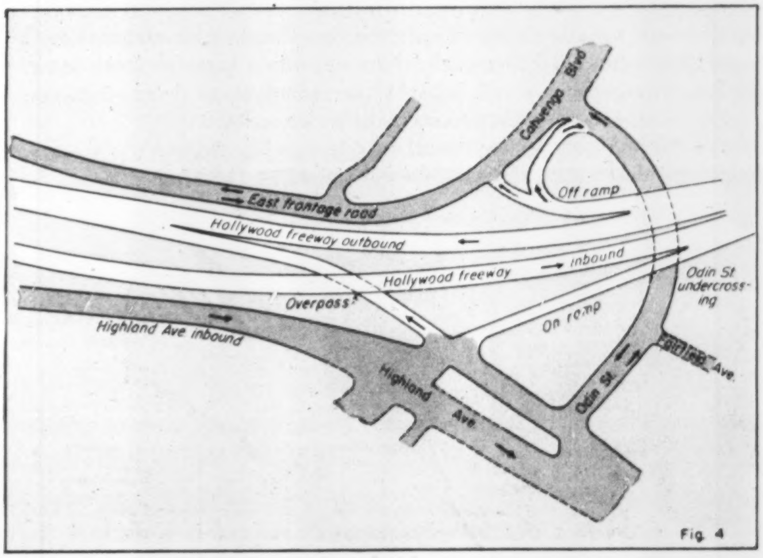
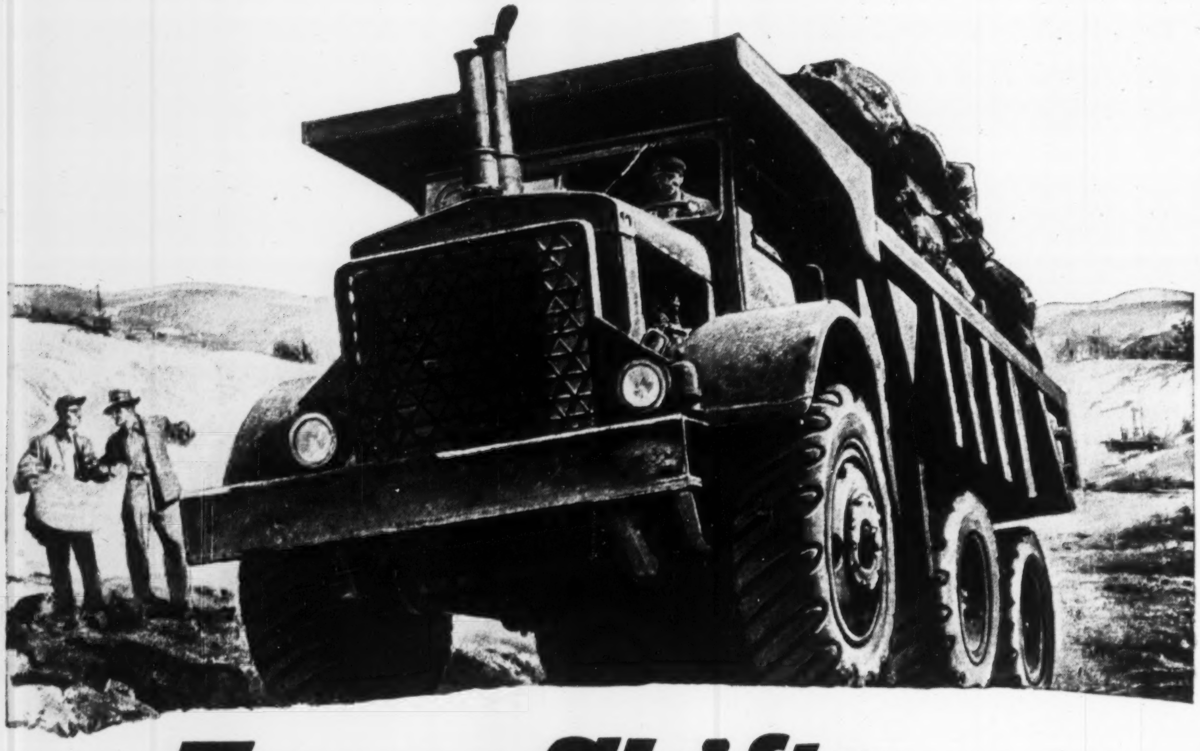

Cahuenga Blvd
East frontage road
Off ramp
Hollywood freeway outbound
Hollywood freeway inbound
Overpass
On ramp
Odin St undercrossing
Highland Ave inbound
Highland Ave.
Odin St.
Ave.

Fig. 4

FINAL TRAFFIC PATTERN with Hollywood Freeway in service has on-and-off ramp connections to Highland Ave. But Cahuenga Blvd., long the major artery, becomes a local street with only an off-ramp freeway connection at this point.



Fewer Shifts for Faster Trips

Take a ride in any mechanical-drive off-highway truck. Watch the driver work all the way as he double-clutches, slows down, shifts and speeds up over and over again. He'll be using up to ten transmission speeds to make his run and it'll be tough going all the way.

Now take that same trip in a truck that has an Allison TORQMATIC DRIVE. The driver's left foot will be idle because there's no clutch pedal to push. Notice how he just flicks a lever to shift *without slowing down.* And notice that with the flexibility of the torque converter he needs only three forward speeds to adequately handle all loads and grades. He'll be making fewer shifts and be back for another load a lot faster. Faster trips mean more pay loads per day.

Matched units built by one manufacturer, Allison TORQMATIC DRIVES cut operating and maintenance costs by absorbing harmful shock loads. Ask your equipment manufacturer, dealer or write:

ALLISON *Division of* GENERAL MOTORS
Box 894EE, Indianapolis 6, Indiana

ALLISON TORQMATIC DRIVES

Unbeatable Team for Maximum Operating Economy

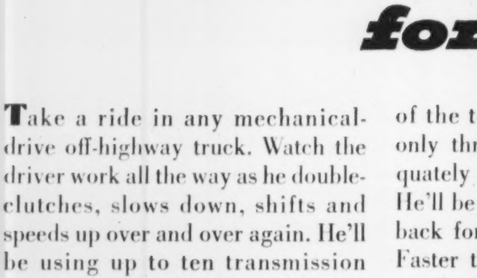
**Quick-shifts* at full throttle with finger-tip hydraulic control.

**Holds* power to load at all times — no clutch pedal to push — no gearshift guess.

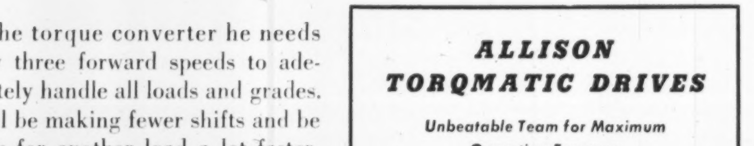
**Cuts* maintenance cost by absorbing shock — eliminates engine lugging — prolongs equipment life.

**Only* torque converter-transmission team designed to work together as a unit and built by one manufacturer.

MATCHED UNITS BUILT BY ONE MANUFACTURER



Allison TORQMATIC DRIVES



COMPACT, EFFICIENT HYDRAULIC DRIVES FOR CRANES * TRUCKS * TRACTORS * SHOVELS * SCRAPERS * DRILLING RIGS

A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

DEPRECIATION

And Its Crucial Economic Role

The sixth annual McGraw-Hill survey of Business' Plans for New Plants and Equipment, just completed, reveals some remarkable facts about the role of depreciation in our economy. To most people, depreciation is a technical term, used by accountants to discuss a dull subject. But it really is a simple matter: It is the amount of money set aside each year by a company to replace plant and equipment that is wearing out. And here are some facts from this survey* which show how depreciation can make the difference between prosperity and recession in the United States:

1. *In 1953, about half of all the money spent on new manufacturing plants and equipment will come from depreciation reserves.* For the future, manufacturing companies are relying even more heavily on this source of money. In the years 1954-56, they count on using their depreciation funds to pay for almost two-thirds of the new plants and equipment now planned.

2. *The amounts of money made available by depreciation allowances vary greatly from industry to industry.* Some industries, such as those producing steel, chemicals and petroleum products, will have relatively large amounts of cash available from their depreciation reserves. In considerable measure, this is because the government is allowing them to accumulate such reserves at an accelerated rate as an encouragement to build facilities required for national defense. But most of the companies engaged in the production of textiles, processed foods and many kinds of machinery have had little chance to benefit by this provision for accelerated depreciation. Hence, they have much less money available from depreciation reserves.

3. *There is a definite shortage of investment funds in the industries that have relatively low depreciation allowances.* Taken together, the coal mining, textile, food processing, machinery and other metal-fabricating industries plan to spend about $4.7 billion for new plant and equipment this year. But they report that they would spend $1.5 billion *more* per year during the period 1954-56 if sufficient funds were available.

4. *Eighty-five per cent of the manufacturing companies covered by the survey reported that they plan to invest all their depreciation funds* to keep equipment up-to-date and to provide capacity for new products and new markets. These companies could let their depreciation funds pile up as idle cash. But the intention is to spend most of them for capital equipment.

---

*The sixth annual McGraw-Hill survey of Business' Plans for New Plants and Equipment included companies that provide 25 per cent of all industrial employment and 60 per cent of employment in those industries where capital investment is highest. These companies are mostly the larger companies in their respective industries. A copy of the full report of this survey can be obtained by addressing: Department of Economics, McGraw-Hill Publishing Company, Inc., 330 West 42nd St., New York 36, N. Y.

Hence, there is a direct relationship between the amount of depreciation funds available and the level of capital investment. And it is upon the latter that the level of general prosperity decisively depends. One-third of all industrial workers are engaged in producing or installing such equipment.

This fact that the level of depreciation allowances has a major bearing on the level of capital investment should not surprise anyone. In several foreign countries where these allowances have been increased, investment has boomed. The two nations with the highest ratios of investment to national income are Canada and Norway. Both countries adopted flexible depreciation policies after World War II. In Sweden and The Netherlands also, flexible depreciation allowances have contributed to rapid industrial expansion. Finally, the tremendous investment brought about by our own rapid amortization program shows dramatically the importance of depreciation in stimulating capital expenditures.

Obsolete Tax Laws

In spite of this record, the fact remains that our laws and the business procedures that govern depreciation allowances — in particular the laws and rulings that govern the deduction of depreciation from taxable corporate income — are still based on antique and obsolete accounting concepts which take no account of depreciation's dynamic role in our economy. The internal revenue code still requires most companies to depreciate their equipment over a long period, even though these small annual allowances cannot possibly pay for the investment that is necessary to keep a plant up-to-date under today's rapidly changing technology, with its production of new and improved machinery.

The only allowance made by the government for rapid depreciation is that which is authorized for certain types of plants during the defense emergency. Under this policy most companies are unable to use accelerated depreciation for tax purposes. And as defense projects are completed, the number of new authorizations is dropping. We may lose the chance to utilize fully this powerful tool for sustaining investment because, under our ramshackle emergency tax structure, accelerated depreciation is available only to a minority of firms on a temporary basis.

New Policy Needed

A sensible, up-to-date depreciation policy for tax purposes is long overdue. Either the Treasury must modernize the internal revenue code on its own initiative, or Congress must take the lead by writing into permanent law a flexible depreciation policy applicable to all companies.

Treasury experts now have before them a number of proposals to allow faster depreciation for the average firm. The U.S. Chamber of Commerce has suggested that companies be allowed to deduct from taxable income 25 per cent of the cost of new equipment in the first year, with the remaining cost to be deductible over the life of the facilities. The Machinery and Allied Products Institute has long sponsored a formula that would allow full deduction in two-thirds of the estimated life of the property. In Congress, Chairman Reed of the Joint Committee on Internal Revenue Taxation has stated that we need a more flexible depreciation policy. Senator Frear of Delaware has introduced a bill that would let a business make its own choice on how fast to depreciate its equipment.

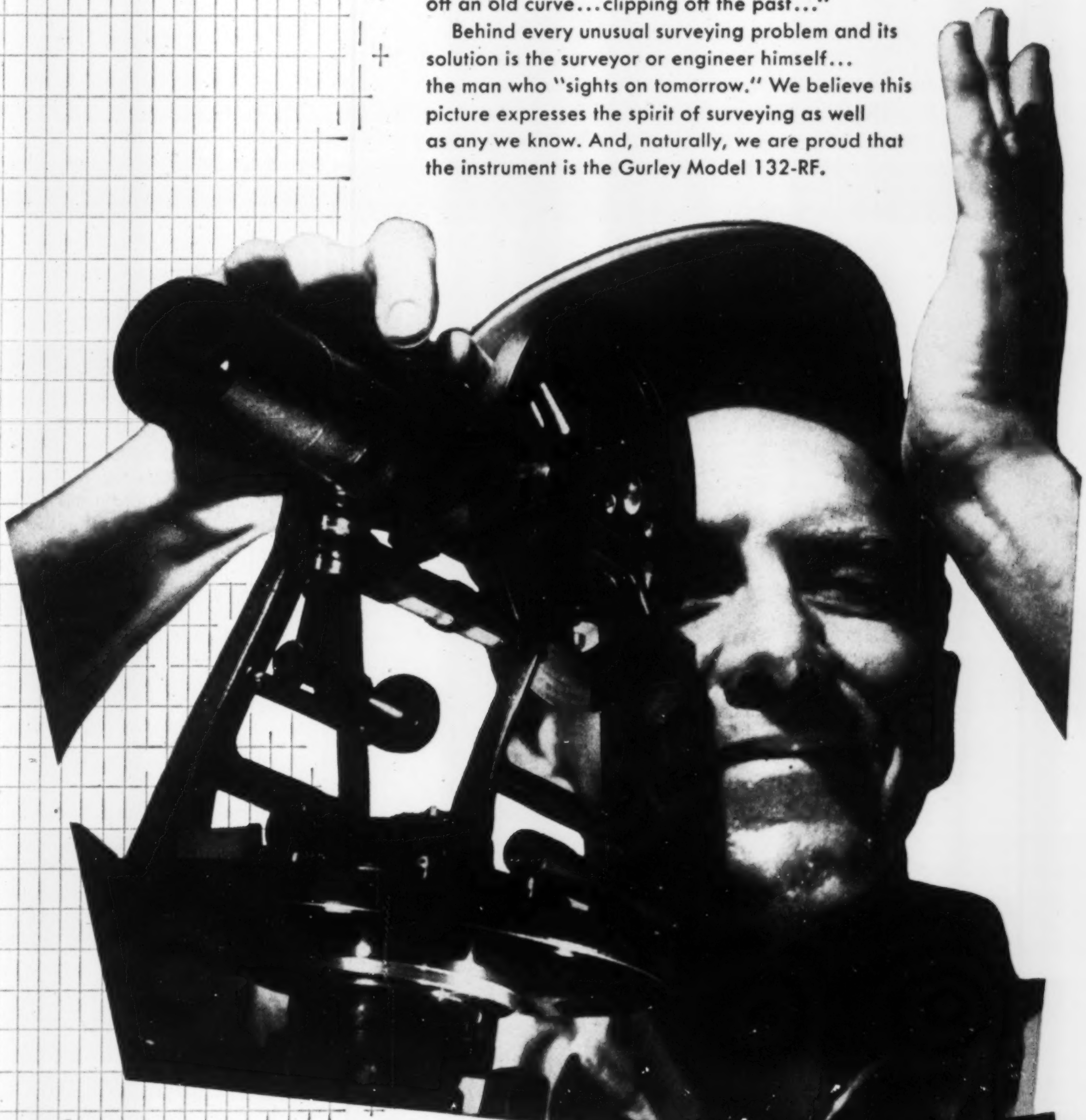
It will take time and study to determine which of these various proposals best fits the needs of the economy without sacrificing unduly the revenue needs of the government. If we are to have a new depreciation policy, designed for a long period ahead, it must be carefully worked out. But this much is clear right now: *The development of a flexible depreciation policy on the part of the federal tax authorities is one of the most important steps that can be taken to sustain prosperity. When we talk about depreciation, we are talking about the money that pays for almost two-thirds of the new manufacturing facilities now scheduled for construction. We are talking about the new investment and the new jobs on which our continued prosperity depends.*

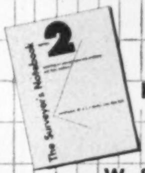
McGraw-Hill Publishing Company, Inc.

The Surveyor's Notebook

"What's this surveyor doing?", asks the Santa Fe System Lines in national magazines and newspapers. "He's sighting on tomorrow...chipping off an old curve...clipping off the past..."

Behind every unusual surveying problem and its solution is the surveyor or engineer himself... the man who "sights on tomorrow." We believe this picture expresses the spirit of surveying as well as any we know. And, naturally, we are proud that the instrument is the Gurley Model 132-RF.

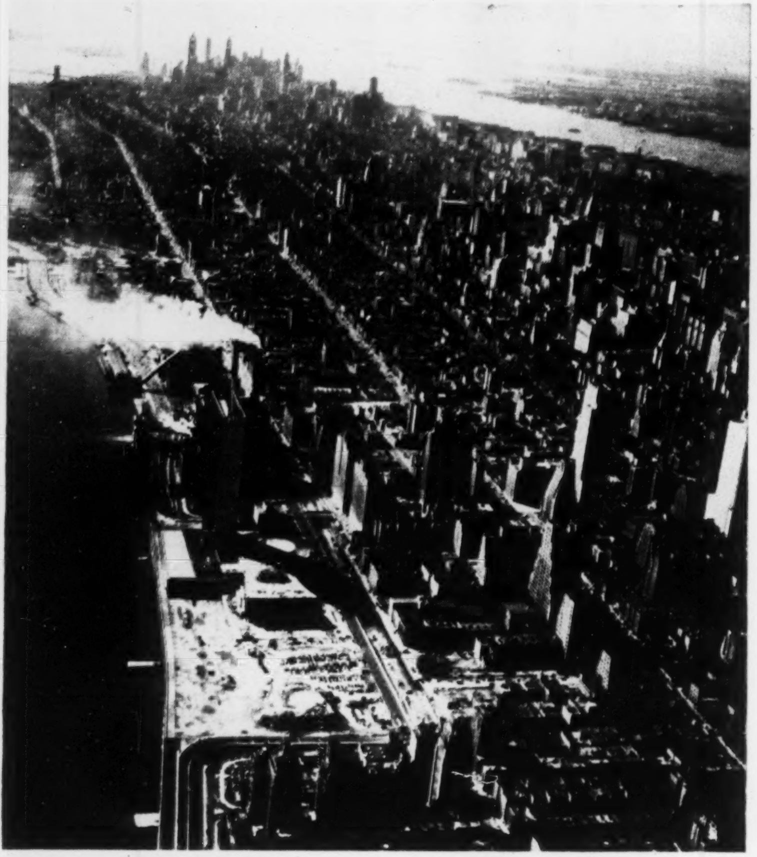




Have you received your copy of the new "Surveyor's Notebook—Series 2"? It recounts the unusual surveying problems and solutions of many forward-looking field men. Write for your free copy.

W. & L. E. Gurley, Union Plaza, Troy, New York.

GURLEY
Surveying and Scientific Instrument Makers
Since 1845



UNITED NATIONS BUILDINGS run from 42nd St to 48th St., between the East River and Franklin D. Roosevelt Drive (left) and First Avenue (right). View is looking south to downtown New York with the city's financial center at the tip of Manhattan (upper center). First Avenue tunnel and General Assembly (squat U. N. Building) are under construction in this picture. Shots of 42nd St reconstruction were taken from top of the tall Secretariat building.

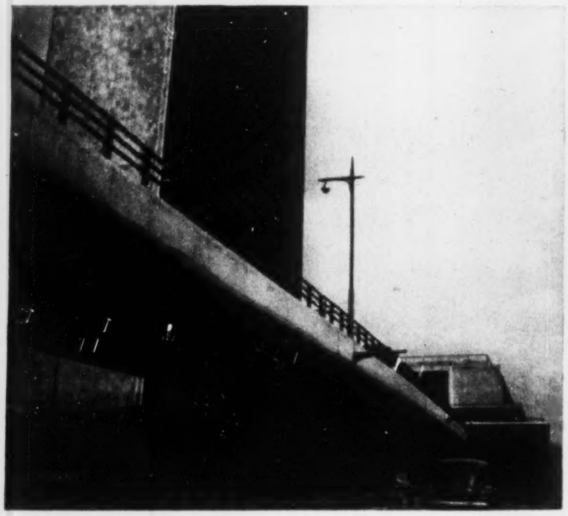
42nd ST. had narrow roadway before . . .

U.N. headquarters

Drop the six-block United Nations headquarters—with its big area and heavy traffic—into the heart of a city and you have more than a political problem.

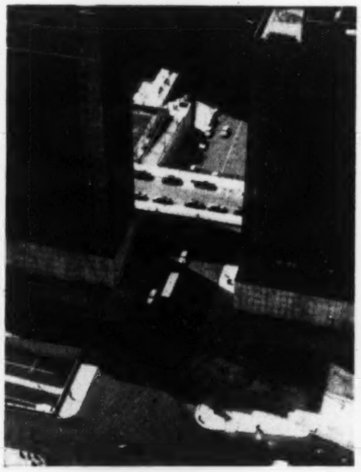
The way has been eased with a $25-million construction program by the city of New York, pointed toward improving the approaches to the U.N.'s buildings on Manhattan's East Side.

In addition to relieving the traffic problem, the program also did much to beautify and improve the area. Parks and playgrounds—and private construction of the Carnegie Endowment for

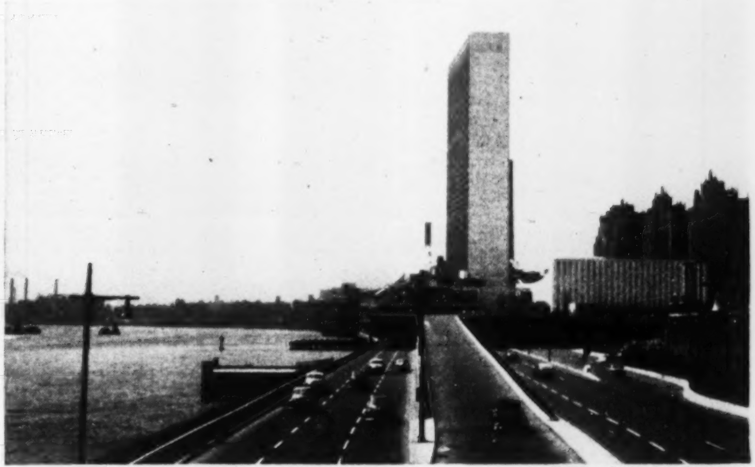


RAMP ACCESS was a construction problem because of East River vehicular tunnel below.

FIRST AVENUE TUNNEL completion provided relief to detoured traffic. Tunnel carries traffic from 41st to 48th Street.



RECONSTRUCTION made access easy.



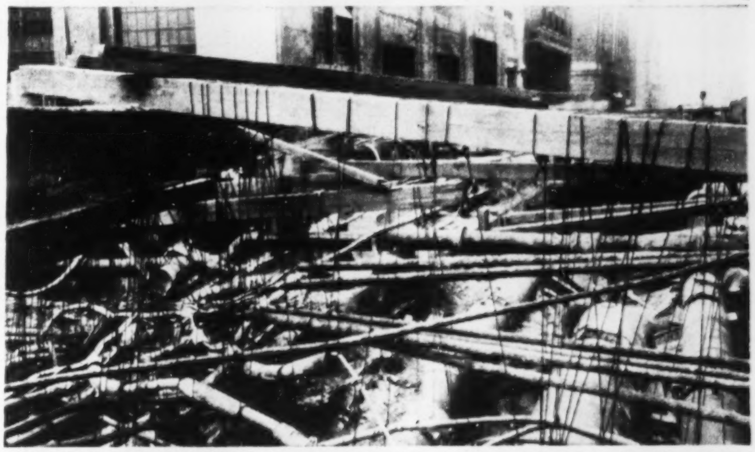
ENR photo by Compton

F. D. R. DRIVE was reconstructed. Note cantilever over roadway at left.

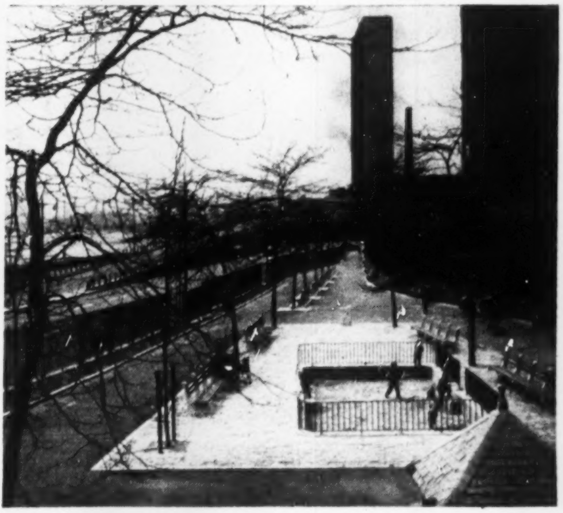
blocks no traffic

International Peace building–make the atmosphere more attractive.

Construction was supervised by the engineering staff of the office of Manhattan's Borough President. Andrews, Clark & Buckley together with Parsons, Brinckerhoff, Hall and MacDonald were consulting engineers on the First Avenue and 42nd Street improvements. Plans for the Franklin D. Roosevelt Drive reconstruction and the 47th St. Boulevard were prepared by the Borough President's design office working with the city's Park Department and the United Nations.



DIG THAT CRAZY PIPE! Tunnel contractor ran into this mess of utility piping.

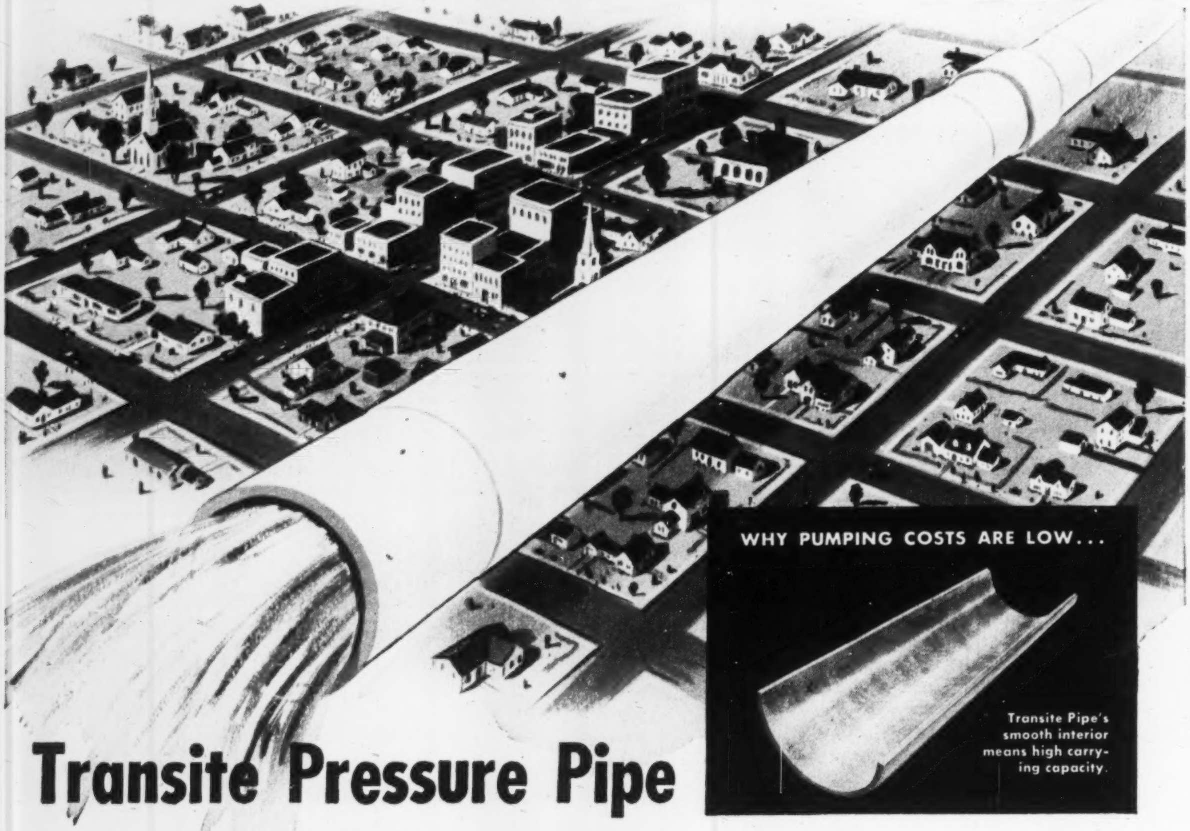


PLAYGROUND AND PARK at 51st St. and F.D.R. Drive is a boon for local residents. U.N. buildings provide inspiration.

47th STREET was widened by tearing down tenements between First and Second Avenues. Carnegie building benefits from work.

Because it is designed for

continued high carrying capacity** and **will not tuberculate . . .



WHY PUMPING COSTS ARE LOW . . .

Transite Pipe's smooth interior means high carrying capacity.

Transite Pressure Pipe

reduces the operating cost of your system

IT HAS BEEN PROVED again and again—through performance records—that Transite* Pressure Pipe reduces pipe line operating costs.

There's good reason for this. Because of Transite Pipe's smooth inner surface and asbestos-cement composition, its initial high flow capacity (C= 140) can never be reduced by tuberculation. This absence of tuberculation is an assurance that a full flow of water will be maintained for years to come. Pumps can be operated closer to peak efficiency; therefore pumping costs can be held to a minimum.

There are many other ways in which Transite Pressure Pipe cuts costs, too. For example:

- It enables the use of smaller pipe sizes—because systems can be designed without allowance for future flow reduction due to tuberculation.
- It is light in weight, easy to handle, fast and economical to install.
- Its factory-made joints are easily assembled, stay tight in service, reduce water losses.
- Its high corrosion resistance assures maintenance-free performance in a wide variety of soils.

Why not find out more about this durable, cost reducing pipe? Many of its installation and operating advantages are illustrated in detail in our Pressure Pipe Brochure TR-11A. For your copy, write Johns-Manville, Box 60, New York 16, New York.

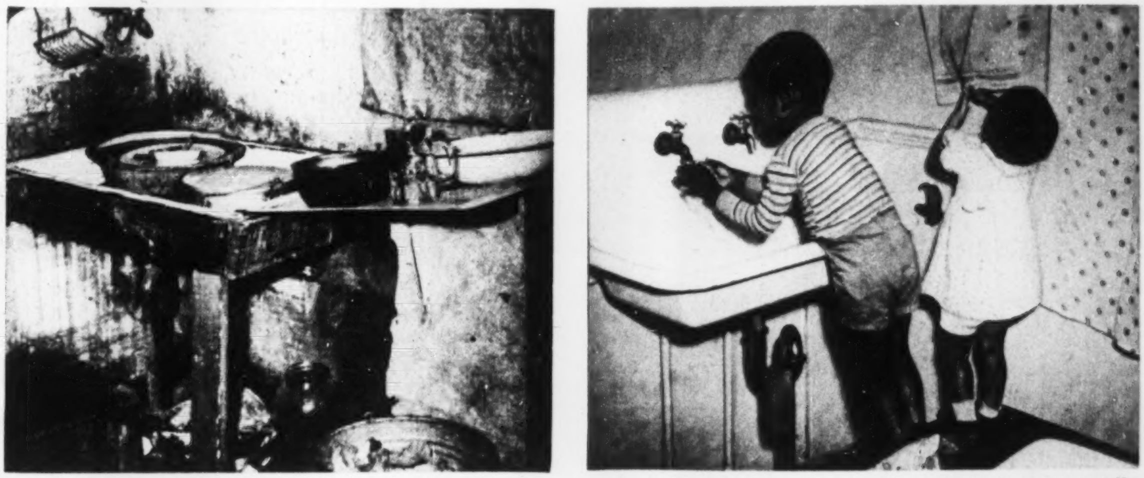
*Transite is a Johns-Manville trade mark.

How Transite Pipe piles up savings on . . .

Installation
Operation
Maintenance

The savings Transite Pipe has effected because of its corrosion resistance, high flow capacity and long life are being realized today by thousands of community water systems, and Federal, state and industrial installations throughout the country.

JM Johns-Manville TRANSITE ASBESTOS-CEMENT PRESSURE PIPE



BEFORE AND AFTER shots illustrate physical improvements. Social and spiritual uplift unfortunately cannot be shown pictorially.

The Baltimore plan:

Is this the way to beat slums?

The city of Baltimore, Md., has a bear by the tail. This is an accomplishment that occasions some pride—but also considerable worry.

The bear is the Baltimore Plan, a highly touted attack on slums that has brought the city national publicity—but has also brought its share of woes. Essentially the plan amounts to a strict enforcement of the housing laws, compelling landlords and home owners to maintain certain minimum standards in their buildings.

City authorities, sensitive to the effects of overselling the plan, are quick to point out that the program is not a cure-all. Somewhat apologetically they admit they've got something good—but they caution: "All we are doing is enforcing the housing laws better than ever before. It's not magic. Any city can do it. We don't claim that it's a substitute for public housing or redevelopment projects. Neither do we claim that slum houses can be transformed into palaces. But we do think we can establish a neighborhood pride, raise the living conditions above a bare minimum and in so doing, slow down the spread of rock-bottom slums."

How well they've succeeded is a tough question to answer, as Baltimore officials found out.

• **Results questioned** – A quick trip through the areas that have been cleaned up can give the impression that not much has been done. There are still the same rows of attached houses, block after block, that give Baltimore a unique look among American cities.

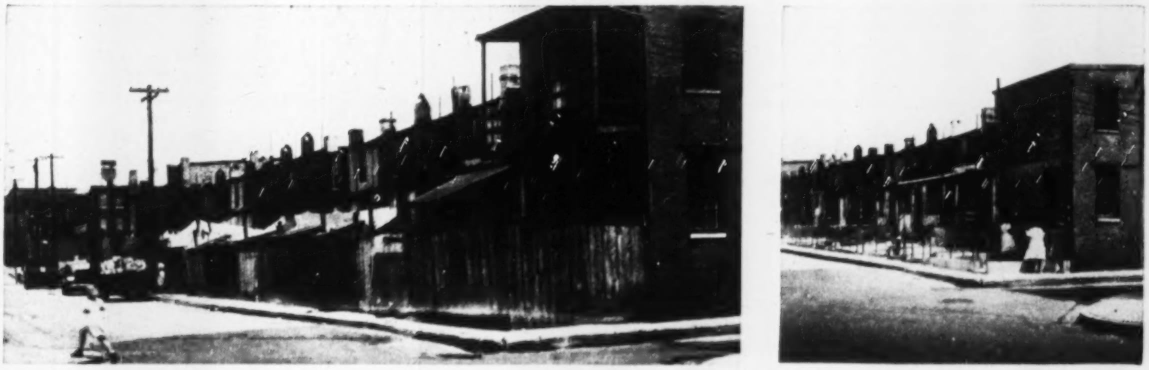
Changes are more evident in the backyards. Old board fenced areas have made way for patches of green and, in some cases, playgrounds. Outside toilets have been moved inside, and most evidences of filth and dirt have been eliminated.

But the result is not palatial living by any means and it's here that the city begins to pile up woes.

Visitors who expect to see miracles are likely to be disappointed and say so—unfortunately on a national scale. People who expect nothing are pleased with the results—and again say so to a national audience.

As a result ENR found city officials both apologetic and proud.

The initial explanation of what has been done and what is planned contains a note of yearning to be understood by outsiders. Here's what they have to say:



OUTDOOR SCENE shows improvement in rear areas. Casual viewers misinterpret this as total value of plan, to chagrin of city.

FAST, SURE DRAINING

of Ground Water is Vital to WORLD'S LARGEST AIRPORT

That's Why Idlewild Depends on

WALKER POROSWALL RAPID DRAIN PIPE

Efficient and rapid drainage at Idlewild was a major problem — solved by using WALKER POROSWALL as a permanent installation for sub-surface runway drainage. In the words of Carillo & Green Associates, consulting engineers, POROSWALL "lowered the water table to a level beyond our best expectations."

WALKER POROSWALL Rapid Drain Pipe is the fastest drainage medium known. It is porous concrete, extremely permeable throughout its entire circumferential area. There are no open joints or perforations to permit the entrance of dirt. This prevents clogging!

Write for detailed data and sample

WALKER

POROSWALL

RAPID DRAIN PIPE

WALKER CEMENT PRODUCTS COMPANY

98 BERGEN TURNPIKE
LITTLE FERRY, NEW JERSEY

• **Plan begins**—Like most other cities, Baltimore has slums, some so bad as to be almost beyond belief.

In 1939, the Health Department condemned one section of the worst area to make way for a low-rent public housing project. The resulting publicity, fanned by an aggressive campaign for action by one of the local newspapers, resulted in granting of sweeping powers to the Health Department through an amendment to the city housing code, called the Hygiene of Housing.

The Health Department was charged to "see that dwellings be kept clean and free from dirt, filth, rubbish, garbage and similar matter, and from vermin and rat infestation and in good repair for human habitation. . . ." Wartime shortages and preoccupation with other matters delayed further action.

Following the war, in 1945, the city tried a new tack on the problem. Instead of attempting to handle enforcement on an individual complaint basis, the city marshalled all its forces in one block, inspecting each house and notifying all the landlords of the violations found.

But it took 18 months to complete work on the first single block—and it was apparent that at that rate, houses would deteriorate faster than they could be repaired.

• **Changes indicated**—If nothing else, this first effort spotlighted some changes that had to be made in the approach: For one, the one-block area was too small. For another, real clean-up was going to require more than just getting after the landlords and owners.

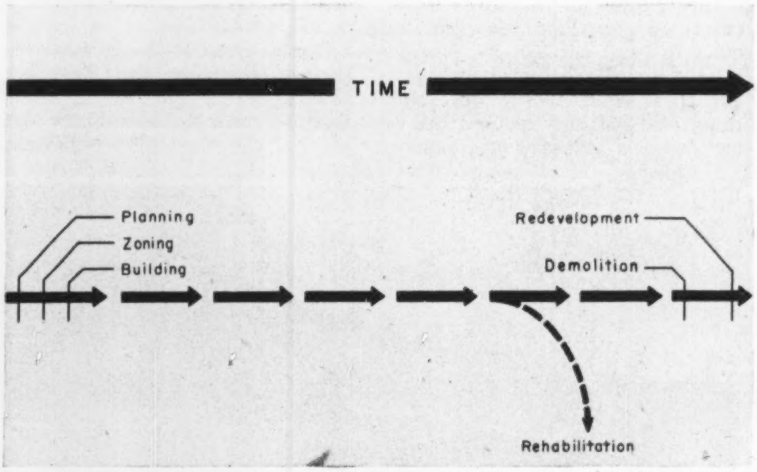
The whole neighborhood would have to be rehabilitated, and residents as well as owners must be imbued with pride in their surroundings. Nonconforming uses of land—such as stables in a residential area—would have to be eliminated. And finally, the area would have to be developed, not only for housing, but for playgrounds, better use of streets and for some other important—but indirect—factors.

• **Special court**—It was also evident that the whole process could be speeded if the housing violations could be heard in a special court—when the cases had to be carried that far. One of the facts of life that planners found was this: A violation heard in the magistrates courts was likely to be sandwiched between an assault case and a larceny case. By comparison, landlords looked like minor offenders and judges seemed not inclined to give the cases the attention the Health Department thought they deserved.

So a special housing court was formed in 1947. In twice-weekly sessions, it hears only housing-law cases—and landlords have learned that the old go-easy attitude is definitely out.

• **Expansion**—Founding of the court pointed the way to a more ambitious program in 1950 when a much larger pilot area was selected.

It was not a rock-bottom area by any means: The 1,000 houses in this

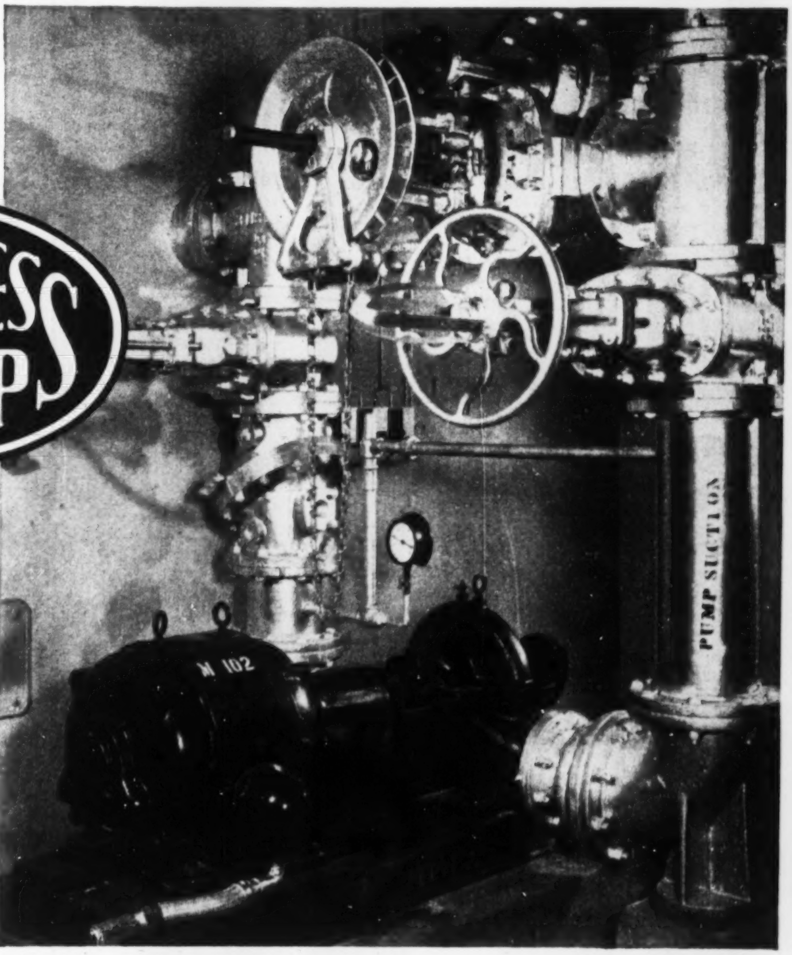


TIME CYCLE of urban housing is suggestion of James Rouse, former head of citizens' advisory group. With little attention from the city, housing will deteriorate until it has to be torn down. Rouse believes the Baltimore Plan short-circuits cycle by providing rehabilitation before rock-bottom is reached. Ideally, strict enforcement of city laws will eliminate need for rehabilitation, keep buildings in tip-top shape.

Peerless DEPENDABILITY

STOPS *Pump Troubles* BEFORE THEY START—

PEERLESS PUMPS



PEERLESS TYPE A SINGLE STAGE, SPLIT CASE HORIZONTAL PUMPS

General Characteristics

CAPACITIES: Up to 70,000 g.p.m.

HEADS: Up to 300 feet.

DRIVES: Direct-connected electric motor; belted drives; diesel, natural gas, and gasoline engine; steam turbine; combination drives.

TEMPERATURES: Handles liquids up to 300°F.

DOUBLE & SINGLE SUCTION: (Double Suction Sizes 1¼" through 48"; Single Suction Sizes 2" & 3").

BOTTOM SUCTION: (Bottom Suction Sizes 12" through 42").

BALL BEARING: Radial and thrust bearings.

THE QUALITY PEERLESS BUILDS IN *is returned to you in service*

TYPE **A** *for* **A***ll purpose pumping*—Peerless Type A pumps can be used in the widest variety of general pumping services, handling water and light alkaline fluids, where no solids are in suspension.

TYPE **A** *for* **A***dvanced design*—Peerless Type A pumps are of the ball bearing type with horizontally split cases, for ease of inspection and maintenance. All are furnished with double suction impellers.

TYPE **A** *for* **A***ll capacities and heads*—Peerless Type A pumps offer users greatest range in capacities, delivering up to 70,000 g.p.m. Type A characteristics permit pumping against heads up to 300 feet.

TYPE **A** *for* **A***mple safety factor*—Oversize shafts, heavy duty ball bearings, wear rings and shaft sleeves all contribute to ample protection against wear, afford a high factor of safety in operation and assure reliable service and extended pump life.

TYPE **A** *for* **A***ugmented service life*—Type A pumps are fully tested in Peerless' modern hydraulic testing laboratory, which can duplicate the field conditions under which the pump will be used. Experienced Peerless trained engineers, located near you are at your service to see that the Type A pump matches or exceeds your requirements.

TYPE **A** *for* **A***ccuracy in construction*—Bearing seats are cast and bored integral with the case, assuring permanent alignment. Parts are machined to gage on an interchangeable part system.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
Factories: Los Angeles, Calif. and Indianapolis, Indiana.
Offices: New York; Atlanta; Chicago; St. Louis; Indianapolis; Phoenix; Fresno; Los Angeles; Tulsa; Dallas; Plainview; and Lubbock, Texas; Albuquerque, New Mexico.
Distributors in Principal Cities; Consult your Telephone Directory.

PEERLESS PUMPS fmc

• • • •MAIL COUPON FOR BULLETIN

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
301 West Avenue 26, Los Angeles 31, California

Please send a copy of Type A Bulletin No. B-1300.

NAME____________________

COMPANY____________________

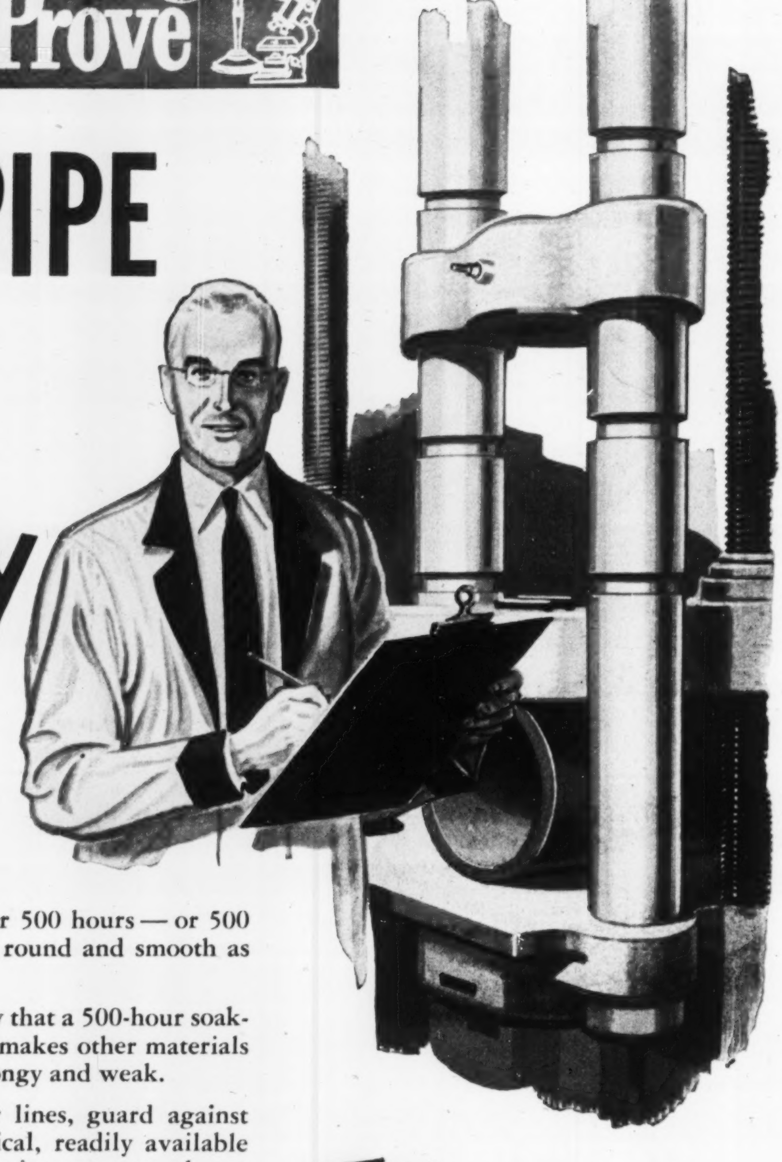
ADDRESS____________________

CITY____________ STATE________

ENR

Tests Prove

CLAY PIPE can't get Spongy



Clay Pipe can carry detergents for 500 hours — or 500 years — and it stays as hard and round and smooth as the day it was made.

Comparative laboratory tests show that a 500-hour soaking in a hot solution of detergent makes other materials sometimes used for sewer pipe spongy and weak.

When you plan or install sewer lines, guard against "squash-outs." Insist on non-critical, readily available Vitrified Clay Pipe. It's the one pipe you can always count on — for prompt delivery, resistance to chemical action, and dependable performance. *It's guaranteed for 50 years!*

Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1520 18th St. N. W., Washington 6, D. C.
206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

ESSENTIAL · ECONOMICAL · EVERLASTING

27-block area were in fairly good shape structurally, but there was plenty of dirt and filth and signs of neglect in the maintenance of the homes.

It took two years to clean up this tract. The result makes it obvious that a lot of hard work definitely can improve living conditions against what appear to be impossible odds. Again, it's not palatial living, but if the area has not improved immeasurably, at least it has stopped moving downhill, is less a breeder of vice and has a lower tuberculosis rate. No one can argue that the work is not worthwhile.

The city is continuing the program on a block-to-block basis, in selected neighborhoods, finding the way a little easier now that a pattern has been established.

• Helping the city—Private groups must help, however, if such a plan is to be successful.

In Baltimore, there was the aid of the Citizens' Advisory Council to the Mayor, made up of leading business men and civic-minded residents. Chairman until recently was James Rouse, mortgage banker. It's function is to advise and aid the city.

Another business-men's group formed the Fight Blight Fund which aids indigent home owners to comply with the directives of the housing bureau. The group raised a fund to make loans but in most cases was able to make arrangements with commercial organizations, at low cost, to finance the work.

The school system conducted a program to make the children more conscious of the necessity of keeping the home and neighborhood clean.

Cooperation of the Police Department was evident by the appointment of "Police Sanitarians" who do nothing but walk around specified neighborhoods, on the lookout for violations of the housing code. They do not bother with the interior of buildings, concentrating on such matters as uncovered garbage cans, accumulations of filth, etc.

• What's the result?—Even with all this cooperation between city and citizen, and with the wealth of experience, there are still sharp differences of opinion as to the future course.

All parties do agree, however, that the plan works best on houses and neighborhoods that are fundamentally sound, where the problem is one of correcting and preventing neglect. The worst slums can only be made slightly more habitable until they can

a "best-seller" that's FREE to Architects and Engineers

TYPICAL DESIGNS of TIMBER STRUCTURES
A reference for use of Architects and Engineers
TIMBER ENGINEERING COMPANY • WASHINGTON D.C.

more than 40,000 copies

of this helpful book, "Typical Designs of Timber Structures" are at work, suggesting ways of designing and building better wood structures faster, more economically with . . .

TECO WEDGE-FIT CONNECTORS

and Trip-L-Grip FRAMING ANCHORS

This 116-page book offers 88 typical designs for light and heavy frame buildings of all types.

FREE copy to Architects and Engineers using the coupon below, or writing us on your letterhead.

TIMBER ENGINEERING COMPANY 1319 18th Street, N.W., Washington 6, D.C.
CHICAGO • NEW ORLEANS • IN CANADA: J. E. GOODMAN SALES, LTD., TORONTO

Please send me the FREE copy of "Typical Designs of Timber Structures."

NAME...

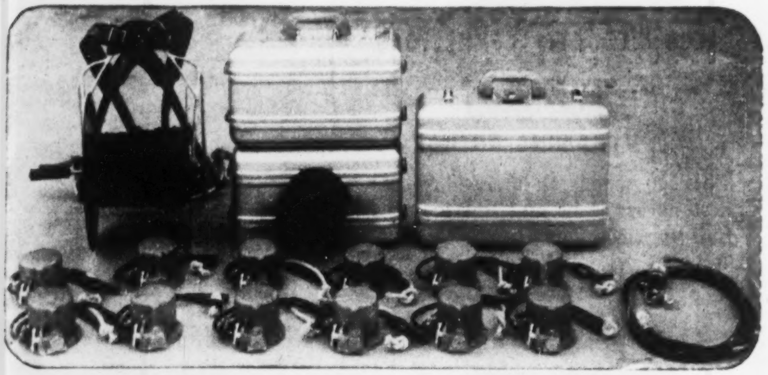
FIRM...

STREET.................. CITY.................. Zone........ STATE..................

ENR

HOW DO *YOU* FIND BEDROCK?

THERE IS AN
EASIER WAY
with CENTURY
CONSTRUCTION
SEISMOGRAPH



Now you can locate bedrock and plot its contour in minutes instead of hours. To learn more about this new and PROVEN method of bedrock finding without detailed and costly drilling, write 1333 *North Utica*

Century GEOPHYSICAL CORPORATION
TULSA, OKLAHOMA
EXPORT: 149 Broadway, New York

be scheduled for demolition prior to construction of redevelopment or housing projects.

It is also agreed that a separate housing court, an educational program and citizen's committees are absolutely necessary.

It is clear, too—although not effectively carried out in Baltimore—that the city must maintain refuse disposal, street repair and other vital municipal functions at a high level if the people are to be encouraged to keep their homes in repair.

But—and it's a big but—the municipal machinery to effect these reforms is the big headache.

The citizens' advisory committee believed that the plan could be most effective if it were handled by a separate executive body, removing the job from the complete domination of the Health Department. It stressed the overlapping duties of the many municipal bureaus involved and the difficulty of coordinating the work of those bureaus. As an example, if the Health Department finds that a park is necessary for complete rehabilitation of a neighborhood, it is almost powerless to create it. Or the department may want a little-used street blocked off in order to put the land to better use. Again "going through channels" creates undue delays, if it is ever done at all.

These thoughts were expressed in a letter to the mayor from the council in the early part of 1952, and were backed by the sponsoring of a measure in the state legislature creating such a separate body.

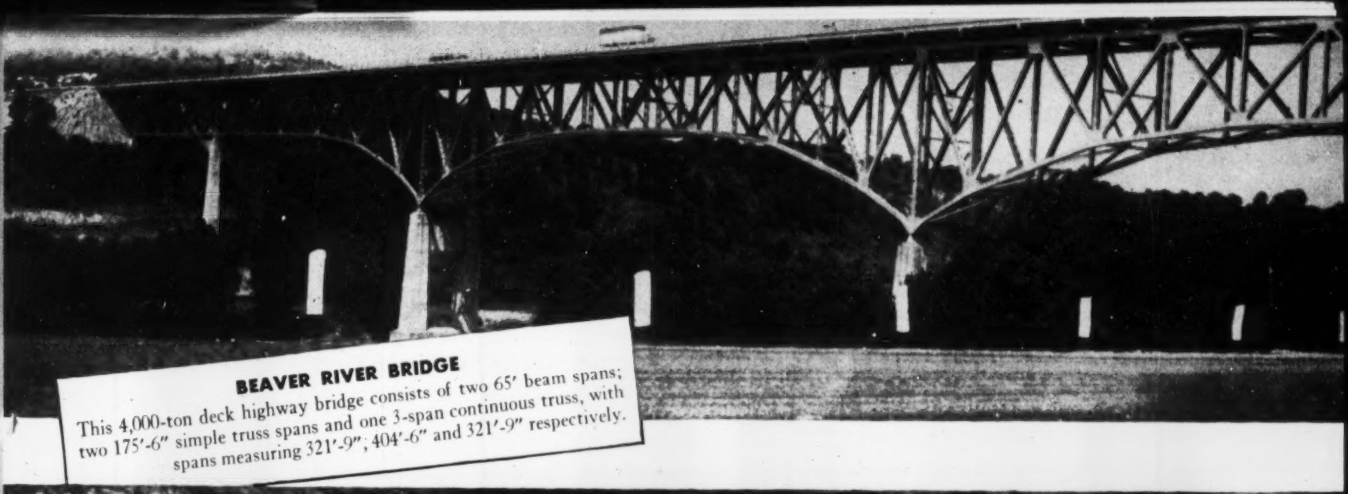
However, the mayor took exception to the suggestions, making it necessary for Rouse and several committee members to resign so they could push the bill. It never got through the legislature.

• **Objections**—The mayor's office charged that the bill would take powers from the Department of Public Works and the Fire Department and also reduce some of the powers of the Health Department. This would lead to a duplication of the tasks assigned to those departments, it was alleged, and increase the city's enforcement costs. Further, the mayor's office believed the present set-up was entirely satisfactory.

ENR found Rouse in complete disagreement. "There must be an opportunity to pin-point authority or the plan will not be successful," he says.

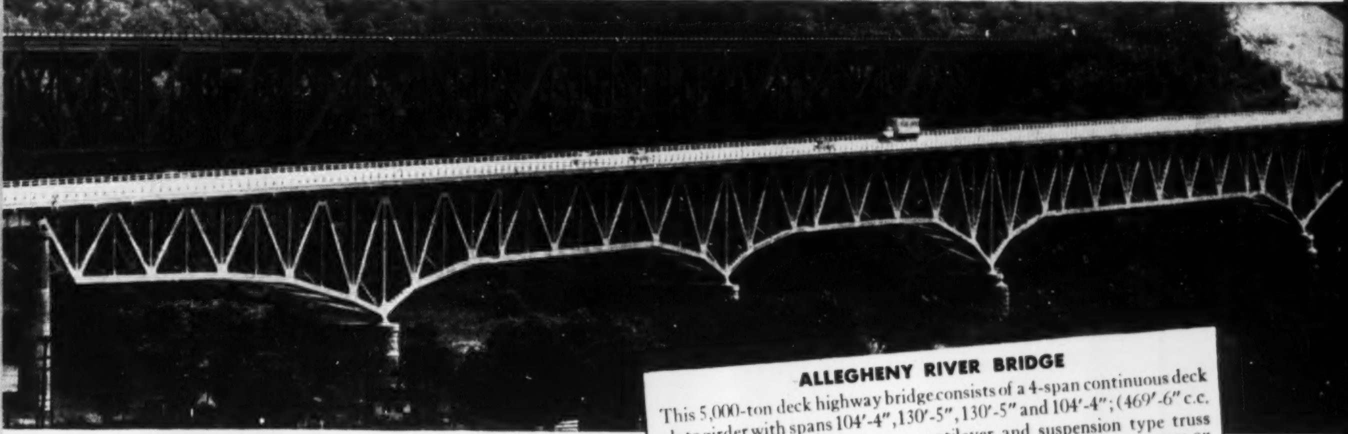
"A city will give a redevelopment authority almost unlimited power to

(*Continued on page 59*)



BEAVER RIVER BRIDGE

This 4,000-ton deck highway bridge consists of two 65′ beam spans; two 175′-6″ simple truss spans and one 3-span continuous truss, with spans measuring 321′-9″; 404′-6″ and 321′-9″ respectively.



ALLEGHENY RIVER BRIDGE

This 5,000-ton deck highway bridge consists of a 4-span continuous deck plate girder with spans 104′-4″, 130′-5″, 130′-5″ and 104′-4″; (469′-6″ c.c. of end bearings) and a 5-span cantilever and suspension type truss with spans 266′-8″, 346′-8″, 346′-8″, 533′-4″ and 213′-4″; (1706′-8″ c.c. of end bearings).

43 bridges

on western extension of Pennsylvania Turnpike

by American Bridge

The structural steelwork for 43 bridges on the new sixty-seven mile extension of the Pennsylvania Turnpike was fabricated by American Bridge. American Bridge also erected 34 of these modern bridges, the two largest of which are shown above.

The completion of this final westward link in the super-highway further establishes American Bridge as the nation's greatest builder of bridges. No single company has built more bridges. None has built larger or more outstanding bridges.

The attainment of such a record is the result of more than fifty years of bridge building experience and is conclusive proof of the confidence engineers and contractors have in American Bridge.

You, too, will find that American Bridge has the ability, the technically trained personnel, and the fabricating and erecting facilities to efficiently handle any type of structural steel job, however large or small, or difficult. If you would like to know more about American Bridge, just call our nearest Contracting Office.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION · GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON · CHICAGO · CINCINNATI · CLEVELAND · DALLAS · DENVER · DETROIT · DULUTH · ELMIRA
GARY · MEMPHIS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH · PORTLAND, ORE. · ROANOKE · ST. LOUIS · SAN FRANCISCO · TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

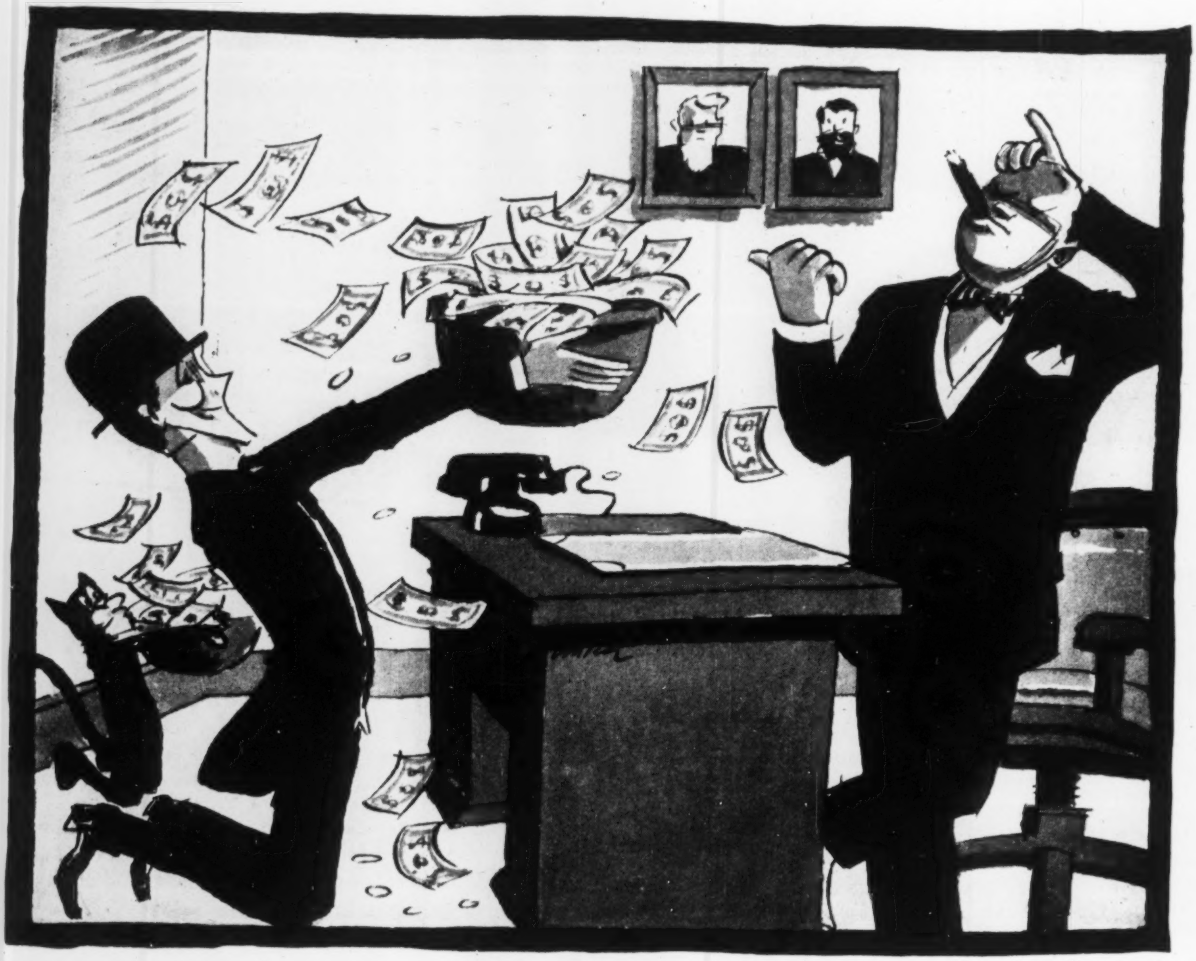
AMERICAN BRIDGE

USS

UNITED STATES STEEL

BE A GOOD SPORT

(An appeal to your baser instincts)



AMERICAN MUTUAL

Service from salaried representatives in 78 offices! Savings from regular substantial dividends!

AND GET RICH!

by Mr. Friendly

HERE we're begging on our knees,
Let us make you richer . . . please!
Won't you just be money mad?
Do it for the kiddies, dad . . .

Give your little girl and boy
Coupons full of gilt-edged joy;
When they shuffle through a pile,
Watch their cunnin' faces smile!

Read this case* and you will see
How we saved one companee
Pails and bales of folding glee;
Were they angry? . . . No siree!

*THE $100,000.00 CASE OF THE BRISTOL BRASS CORPORATION

Company: The Bristol Brass Corporation of Bristol, Connecticut, famous New England Brass Company for 103 years—makers of quality sheet brass, brass wire and brass rods.

Record: An American Mutual policyholder for over 30 years.

Savings through lower premiums: $57,231 in the past 9 years alone.

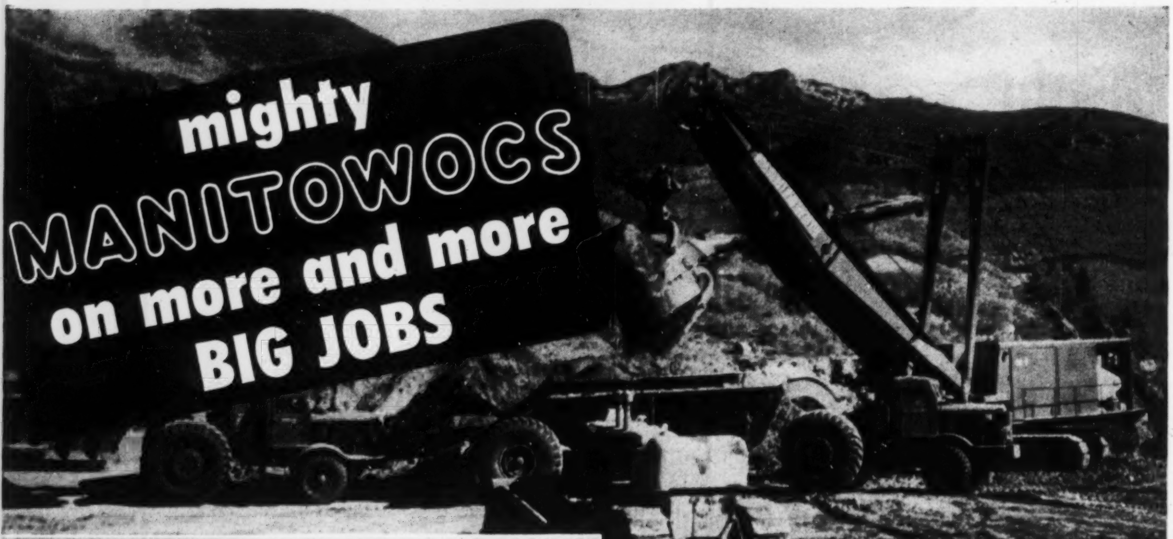
Savings through dividends: $42,503 in 9 years.

Total savings: $99,734, or so close to a neat, tidy $100,000 we stretched it a few bucks!

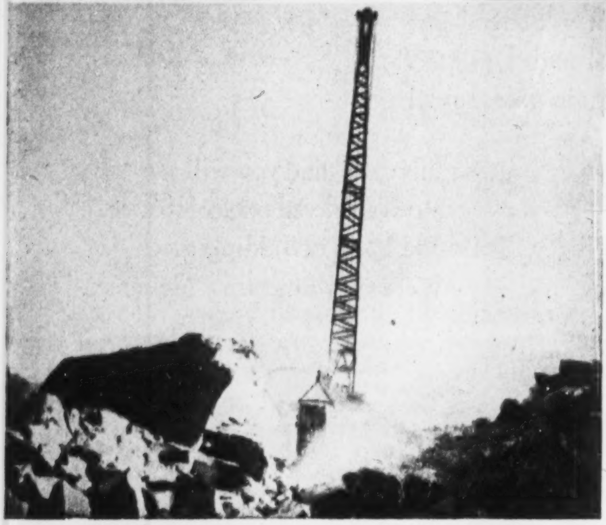
Moral: If you're interested in a service that can help reduce costly accidents and premiums to way below average . . . and help raise employee morale, write for the complete case of The Bristol Brass Corporation, American Mutual Liability Insurance Co., Dept.O-120,142 Berkeley St., Boston 16, Mass.

©1953 AMERICAN MUTUAL LIABILITY INSURANCE COMPANY

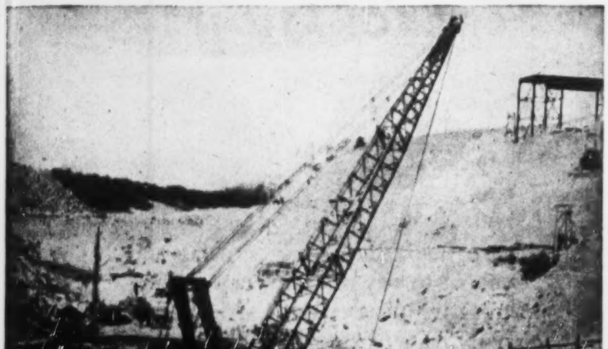
mighty MANITOWOCS on more and more BIG JOBS



PALISADES DAM — Two Model 4500's owned by J. A. Jones and C. H. Tomkins each handling over 10,000 yds. in 20 hr. shifts.



CHIEF JOSEPH DAM — Model 4500 Dragline owned by Columbia River Constructors, on a really tough excavation job at this huge dam near Bridgeport, Wash.



FOLSOM DAM — Model 4500 Dragline owned by Merritt-Chapman & Scott-Savin, loading trucks. Another Manitowoc 3900 also on job.

There's a big switch to Manitowoc all over the country — big jobs, small jobs — big contractors, small contractors — are all replacing with mighty Manitowocs.

They've found what they're looking for — the power and speed for big yardage — the extra heavy, rugged construction for long life — the simplicity of design for lower operating costs — the quick convertability for greater versatility — the ease of operation for operator comfort and productivity.

No other excavator can match a Manitowoc in performance — because no other excavator has the built-in features and extra values found in a Manitowoc.

May we prove it to you? Send for catalogs on the mighty Manitowocs, now. Manitowoc Engineering Corp., Manitowoc, Wisconsin.

MANITOWOC

SHOVELS
1-5 YD.

Speedcrane

CRANES
18-100 TON

demolish areas for new construction," he added, "as it realizes the urgency of cleaning up the worst slums. This amounts almost to a social revolution—the cities should now realize that it is just as urgent to prevent slums through an authority having equal power to enforce existing laws."

He also wanted it made clear that the Baltimore Plan cannot be transferred to other cities, as is. He saw it as only a step, the development of a method, not as a finished product. And definitely, he concluded, not a miracle. It calls only for hard work which is combined with some enlightened thinking.

Municipal briefs . . .

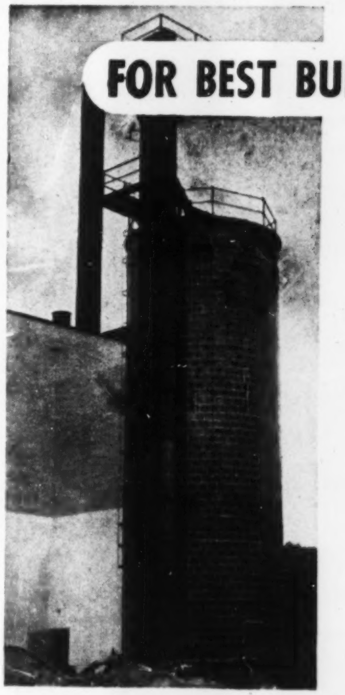
- **Reversed position**—The Kentucky Water Pollution Commission has reversed itself and given approval to the Louisville Metropolitan Sewer District for the construction of 19 sewer extension projects. Reason: Louisville plans to finance a new sewage treatment plant by either increasing sewer charges or imposing a new levy for disposal of storm water (ENR Mar. 19, p. 48).

- **Water conservation**—Upper Moreland township in Montgomery County, Pa., has adopted an ordinance designed to conserve underground water supplies. In addition to provisions regulating the drilling and capacity of wells, there is also a measure to prevent the discharge of industrial wastes underground and a requirement that all unused wells be capped and sealed.

- **Toledo sewage plans**—The city of Toledo has retained an engineering firm, Consoer, Townsend & Associates, to prepare plans for a secondary sewage treatment plant. Construction will cost about $7.5 million for the proposed facility.

- **Buffalo housing**—Showing the extent of public housing in Buffalo, N. Y., is the fact that the city will have nearly 5% of its population in that type of development when the present program is completed. Completion is scheduled for 1954.

- **Smell trouble**—Residents of North Charleston, W. Va., are up in arms over the proposal to build a new $11.5-million sewage treatment plant in their town. They claim noxious odors from the plant will depress property values. If gentle "persuasion" doesn't do any good, they intend to take the matter to court.



Consulting Engineers! Contractors!

FOR BEST BULK STORAGE FACILITIES

specify Kalamazoo

GLAZED TILE INDUSTRIAL STORAGE BINS

QUALITY MATERIAL . . . finest fire clay obtainable . . . vitrified satin-smooth surfaces . . . eight hollow air spaces per block for best insulation.

EASY AND ECONOMICAL TO ERECT . . . complete erection service by our skilled crews available anywhere.

LONG-LIVED . . . heavy, reinforced wall construction . . . impervious to weather, fire, fumes . . . outlast buildings and equipment.

USER-SATISFACTION ASSURED . . . whatever the material, it's protected against corrosion, freezing, spoilage, contamination . . . always in ready-to-use condition.

GET COMPLETE DATA

TILE TANK DIVISION

Kalamazoo TANK and SILO COMPANY

530 HARRISON ST., KALAMAZOO, MICHIGAN

SAMPLING
acker

FREE! SOIL SAMPLING CATALOG

OVER 80 ILLUSTRATIONS

33 YEARS IN THE MAKING

This complete, instructive collection of information about soil sampling in all subsurface conditions, shallow or deep, with hand or power driven tools, is yours for the asking. Modern sampling techniques are discussed with recommendations as to tools and accessories best suited for fast, accurate, economical sampling.

Use the coupon or write for Bulletin 25.

REMEMBER, Acker also makes a complete line of Diamond and Shot Core Drills, Drilling accessories and equipment.

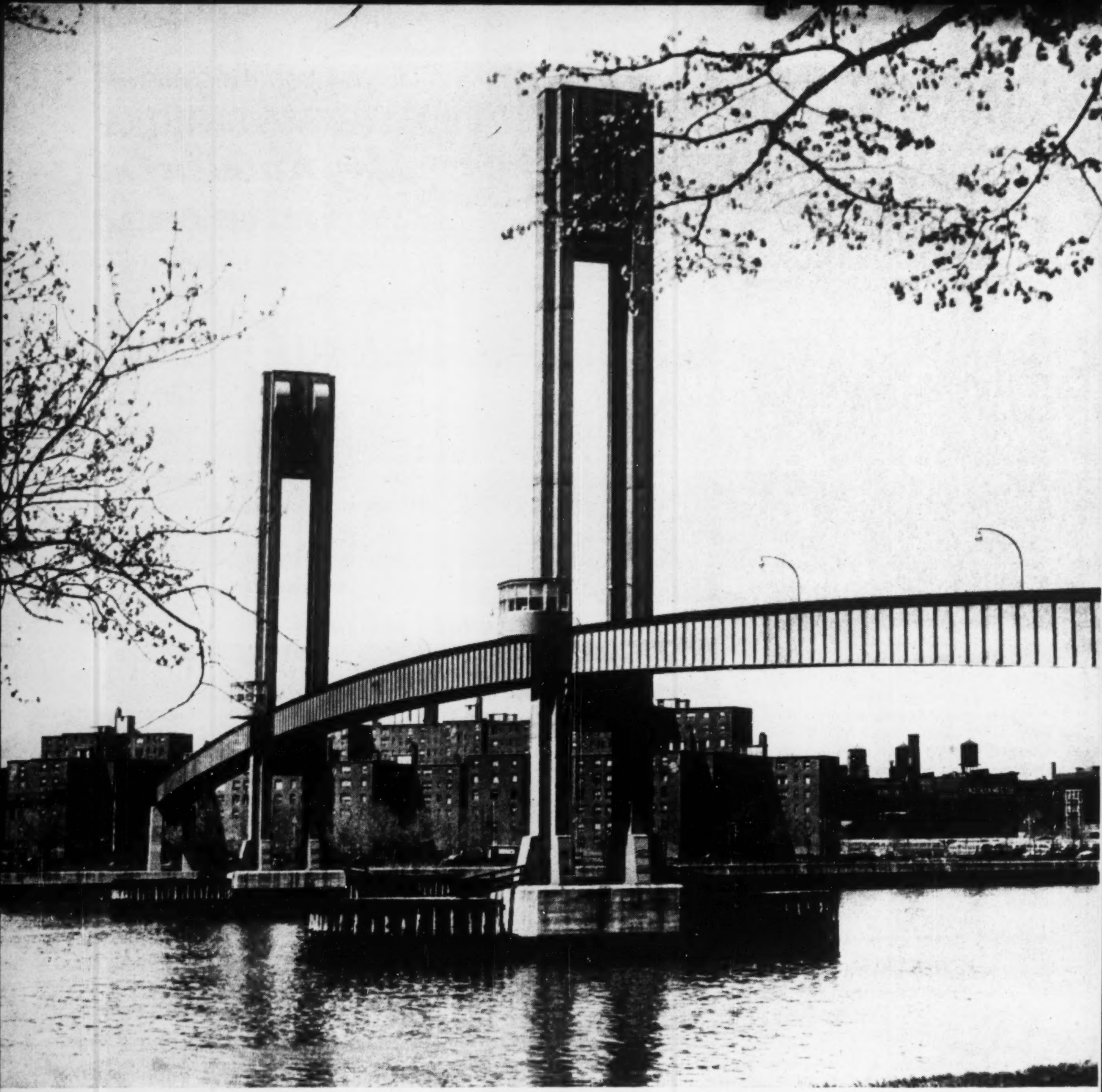
★

ACKER DRILL COMPANY, INC.
Scranton, Pa.

Pioneers in Soil Sampling

Send me my free copy of Bulletin 25, ENR

Name__________ Title__________
Firm__________
Street__________
City__________ State__________



New $2,000,000 East River Pedestrian Bridge provides access from East 103rd Street, Manhattan, to Wards Island, New York.

City of New York, owner; Hardesty, Hanover, Ammann & Whitney, consulting engineers; Johnson Electric Co., electrical contractor; American Bridge, fabricator-erector.

From this modern Westinghouse Control Desk, the operator has complete finger-tip control of all operations.

World's longest girder lift span operates from finger-tip control

A finger-tip speed control system plays a vital role on the Department of Public Works' new East River Pedestrian Bridge. Connecting East 103rd Street, Manhattan, to Wards Island, New York, this installation features a 312-ft. girder lift span—longest in the world.

Level raising and lowering of the lift span is done by four 40-hp Westinghouse wound-rotor induction motors, paired off in the two towers. Each pair includes a drive motor and a leveling motor. Drive motors raise and lower the span. The other two are connected in a power synchro-tie arrangement to keep the span level.

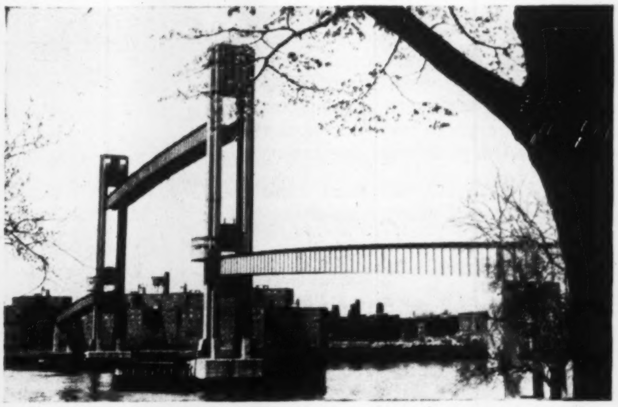
Centralized operation and control are provided by a Westinghouse Control Desk. Mounted in the desk are main drum controllers, toggle switches, pushbuttons, height and level indicators, instruments and indicating lights. These give the operator complete and centralized control of all operating functions.

Two alternate control methods, in the control desk, have been provided for emergency operation. One system is automatic—utilizing Westinghouse synchro-tie transmitters and a differential receiver. The other permits manual operation.

This is another instance of Westinghouse participation in movable traffic bridge projects—ranging from complete engineering service to supplying electrical apparatus, matched to a specific need.

Your nearest Westinghouse office can give you examples in your own area. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

J-94964

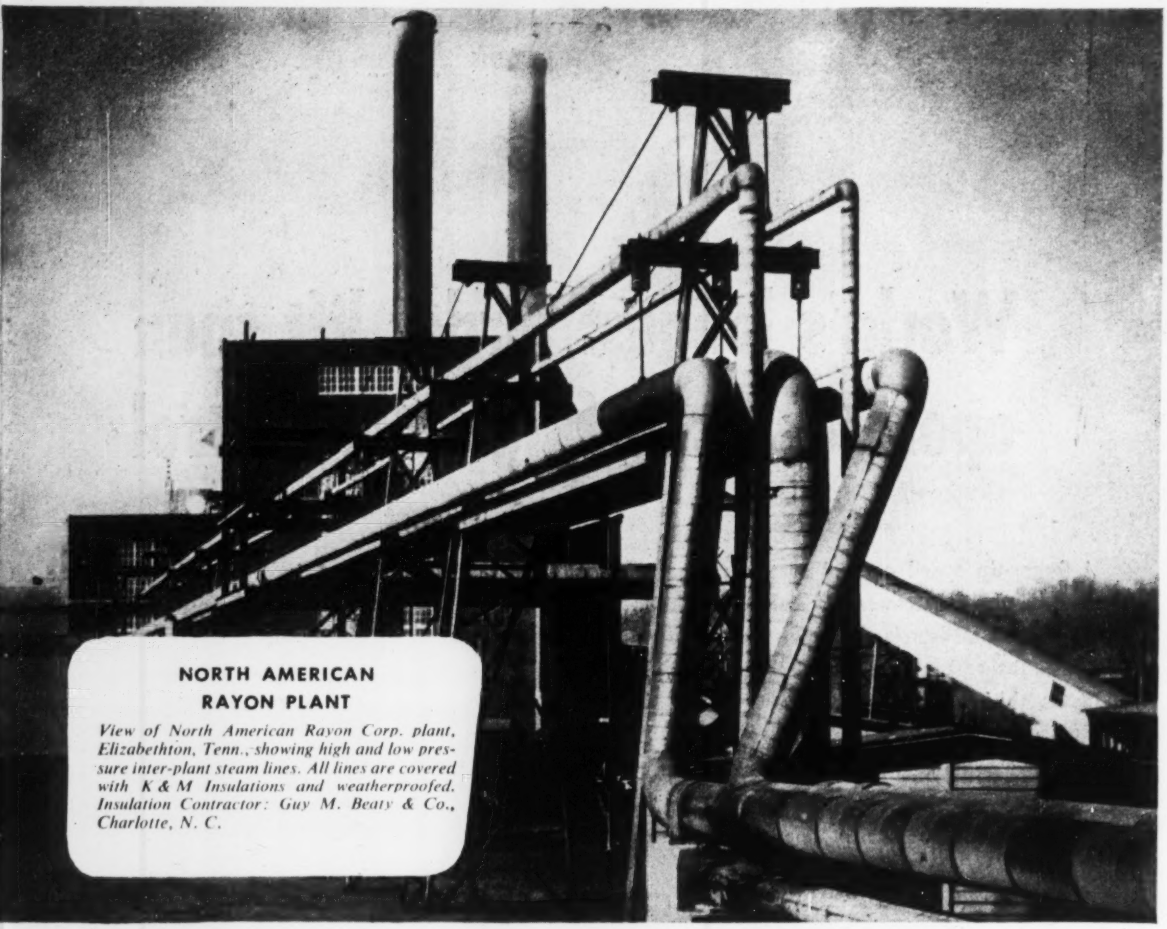


YOU CAN BE SURE... IF IT'S

Westinghouse

SYSTEM PLANNING FOR MOVABLE BRIDGES

Unusual girder lift span, powered by four 40-hp Westinghouse wound-rotor induction motors, has a lift of 80 ft. to provide 135-ft. clearance above water.



NORTH AMERICAN RAYON PLANT

View of North American Rayon Corp. plant, Elizabethton, Tenn., showing high and low pressure inter-plant steam lines. All lines are covered with K & M Insulations and weatherproofed. Insulation Contractor: Guy M. Beaty & Co., Charlotte, N. C.

Steam takes weather in stride
—under K&M Insulations!

THE steam lines pictured above run more than 2000 feet in the open air—exposed daily to sun, rain, and constant air-temperature change. Yet, because of efficient K&M Insulations, the steam travels these lines with minimum temperature loss. To the plant owners, that means power saved, money saved!

The two products that keep this heat within bounds are K&M Hy-Temp Insulation and "Featherweight" 85% Magnesia. Hy-Temp (diatomaceous silica) has exceptional heat-resisting qualities, and is put directly on the hot surface. A sufficient thickness brings its outside surface temperature to 600°F. or lower.

"Featherweight" 85% Magnesia, a superb insulator, is used as the second layer; and its surface may then be covered and painted, or weatherproofed for outdoor service, as in the illustration above.

K&M Hy-Temp and "Featherweight" in combination are effective on applications up to 1900° F. Two separate layers of insulation with vertical and horizontal staggered joints eliminate heat loss which occurs when expansion of hot piping and equipment causes joints to open in single layer installations. Both materials are made in a variety of sizes, shapes, and thicknesses to suit any application.

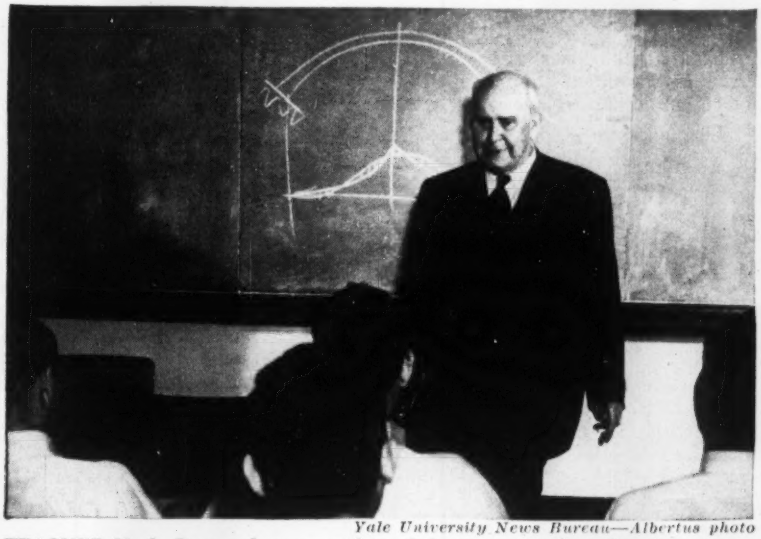
Your K&M Distributor is an experienced applicator who will gladly tell you more about these products. Or write directly to us.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

Nature made Asbestos...
Keasbey & Mattison has made
it serve mankind since 1873

K&M
best in asbestos
®

MEN AND JOBS



Yale University News Bureau—Albertus photo

TEACHER Hardy Cross and some members of the next generation of engineers.

Hardy Cross of Yale retires; practical man and philosopher

"Engineering has, in most of its branches, been thinking out all of its problems again. This is not an indication that the laws of geometry or statics have changed. . . . However, new materials and new uses of old materials have been tried; new methods of using old principles have been invented. In nearly every field of engineering now there is a seething activity of invention, investigation and reinvestigation."

One of the engineers most responsible for stirring up this activity is the man who wrote this paragraph, a portly, 68-year-old skeptic named Hardy Cross (picture), who retires next month as Yale University's Strathcona Professor of Civil Engineering. Though Professor Cross is a very well known civil engineering teacher, he is even better known as the originator of new methods of structural engineering analysis, notably the moment-distribution method of computing stress in rigid frames. Outside of his own field, he developed a standard method of analyzing flow in water distribution systems.

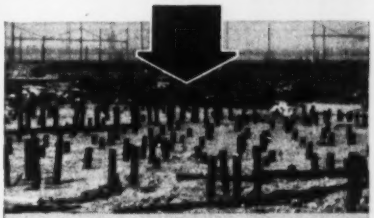
• Whole man–Perhaps the key to Hardy Cross' thinking and teaching is his emphasis that the effective civil engineer has to be a whole man, not a specialist: a man who knows people and institutions, and who is able to use the rules-of-thumb of his own profession as guides to be interpreted with judgment and imagination, not as inflexible laws.

Certainly Cross has practiced what he preaches. As a very young man, just after the turn of the century, he taught English and mathematics. Then he took a civil engineering degree at Massachusetts Institute of Technology, and after that worked as an engineer in the bridge department of the Missouri Pacific Railway.

His first academic post as a civil engineer, at Brown University, came after he got an advanced degree at Harvard in 1911. In 1918, he left Brown to take up general engineering practice. But in 1921 he returned to teaching for good when he became professor of structural engineering at the University of Illinois. It was while he was at Illinois that the "Hardy Cross Method" was published in the early 1930s. He left Illinois for Yale in 1937.

"A teacher, to keep his feet on the ground, to keep in touch with the spirit of actual work as distinguished from the hothouse atmosphere of a school, must serve on technical committees and attend conventions. It is there that he is sometimes told bluntly that he does not know what he is talking about, and most teachers need that badly. . . . Professors must . . . talk to

Pressure-Creosoted Piles, Driven Upside-Down



Save Half a Million Dollars in warehouse construction

● Driving pressure-creosoted timber piles with the big end down saved half a million dollars for Safeway Stores, Inc., on the construction of a warehouse in Kearny, New Jersey, by the Turner Construction Company. Alexander D. Crosett & Associates were the architects. A readily reachable stratum of sand, upon which the engineers intended to support the piles, was not sufficiently thick or dense to prevent the 8-inch-tip piles from punching through. Piles long enough to reach a lower stratum adequate to support the structure, would have been difficult and extremely costly.

To meet this unusual situation, the foundation consultants on the project, Moran, Proctor, Mueser and Rutledge, recommended that the timber piles be driven with the large end down. 8-inch-tip, 12-inch-butt pressure-creosoted piles were driven at about 6-foot center-to-center to support the building.

This butt-end down system made the installation of extremely long piles unnecessary, and resulted in very large savings. In addition, a considerable amount of valuable time was saved—time which would have been consumed in driving long piles. The driven piles, over 7500 of them, were remarkably firm laterally, withstanding individual load tests of twice their designed intensity, i.e., 25 tons.

Koppers Pressure-Creosoted Foundation Piles support all types of industrial and commercial structures—provide lasting protection against fungi, termites and acids in the soil.

For information on price and delivery, ask your nearest Koppers office or write:

KOPPERS COMPANY, INC.
Wood Preserving Division
Pittsburgh 19, Pennsylvania

KOPPERS PRESSURE-TREATED WOOD ®

HOW TO HANDLE
WET JOBS

#18 of a Series

ST. NICHOLAS HOUSES

New York City

Contractors: Willcox Construction and James McHugh Constr. Co.

WELLPOINTS WIN
IN "PHOTO FINISH"

DUE TO sub-soil conditions, foundation design in this last building had to be changed. After such delay, time was of the essence. The Housing Authority's test had shown that water must be lowered 10 ft. Soil: very coarse sand. How fast could it be done?

• That was the problem as action got going on pre-drainage, as follows: Griffin wellpoint equipment was raced to the nearby job-site in 60 minutes. Within 39 working hours thereafter a wellpoint system of 600 ft perimeter was installed and drinking up ground water — that was 11:45 P.M. on a Friday. Only 8 hours later, pumping had brought water below required level.

• Failure of just one day would have held up digging 3 days, with machinery idle . . . When dependability counts, count on Griffin.

GRIFFIN
WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

many people, must visit many plants . . . in order that they may bring into the classroom a full vision, a fresh outlook."

That is why Professor Cross has served as consultant on many engineering projects and on many engineering committees, including those of the American Society for Engineering Education, the American Society of Civil Engineers, the American Concrete Institute, and the American Railway Engineering Association.

• Honors—And for his work he has collected some honors. For instance: the Norman Medal of the American Society of Civil Engineers (1933), the Wason Medal of the American Concrete Institute (1935), and the Lamme Medal of the American Society of Engineering Education (1944).

Yet with all his technical contributions, it may be that Hardy Cross will be best remembered as a philosopher of education. In speaking on one of his favorite themes, the relation between theory and practice he said:

• Philosopher—"Of course, there can be no discrepancy between correct theory and good practice. However, theories are not entirely correct, because they are based on assumptions which limit their application; and a theory which will not work is a wrong theory. Yet all engineering is dependent on theory, for it is only by theory that the profession can correlate experience or interpret experiments; burning down a house to roast a pig is expensive. All theory is limited in application, but it cannot be dispensed with. . . . But those who assume that the first thing to be done with an engineering problem is to begin industriously computing areas, moments and stresses will appear as absurd as did the little jurors in *Alice in Wonderland* who began busily to add up all the dates in the evidence and reduce the sum to pounds, shillings and pence.

". . . Engineers know that analyses, whether mathematical or by models, experiments and experience are all merely evidence bearing upon their problem, to be judiciously weighed in drawing conclusions. . . ."

". . . The ability to correlate this knowledge and season it with dependable common sense is the rarest, the most valuable and the most difficult skill for an engineer to acquire."

(Quoted matter is from "Engineers and Ivory Towers," a collection of Cross writings edited and arranged by Robert C. Goodpasture, and published in 1952 by McGraw-Hill.)

Praeger is honored

Metropolitan Section of ASCE gives its first award

The Metropolitan Section of the American Society of Civil Engineers this week gave Emil H. Praeger its first annual award as "Metropolitan Engineer of the Year." This is a new honor that the section will give each year for exceptional service to the civil engineering profession in the New York-New Jersey metropolitan area.

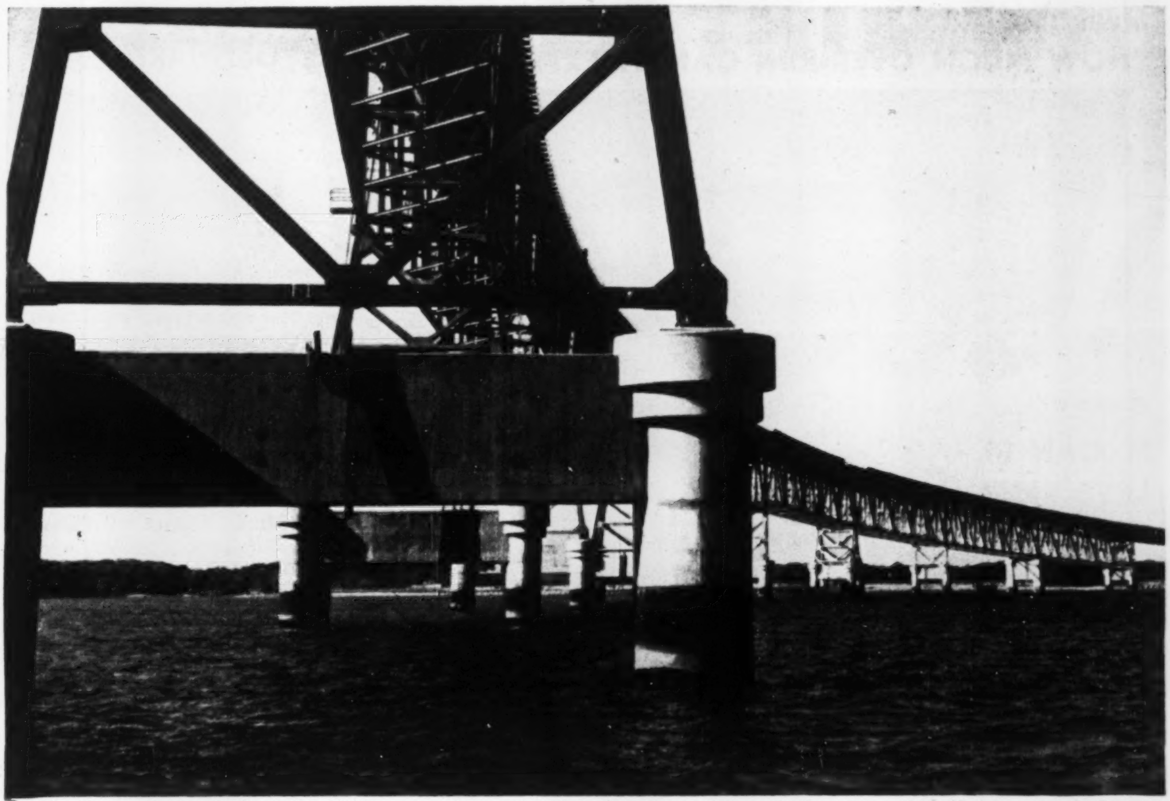
The award, of course, comes to Praeger for his conception and design of Pier 57 in the Hudson River, a story that ENGINEERING NEWS-RECORD has followed in detail.

• Floating boxes—Perhaps the most unusual feature of Pier 57, which is now under construction, is the use of three reinforced concrete boxes as substructure, floating in the river mud. The usual type of pile substructure was uneconomic here, because the engineers would have had to go down some 400 ft to reach rock. The buoyancy of the boxes will carry 90% of the pier's dead weight. The boxes will be used for storage and utility rooms. This substructure design will be fire resistant, immune from attack by marine borers, and will have low upkeep.

The boxes were built several miles upstream, towed down the Hudson to the site, filled with clean city water, then gradually pumped out to compensate for increasing weight as the pier substructure was built up.

This isn't the first time concrete boxes have made Praeger famous. Back before the invasion of Normandy, he was a member of a committee assigned to study the possibilities of designing and building floating concrete breakwater units. Praeger was convinced that a rectangular shape was preferable and won his point.

• Designer—Praeger, who is now a partner in the New York City consulting firm of Praeger & McGuire, still stays on as a consultant to Madigan-Hyland, for whom he designed the substructure of Pier 57. He has also served as general superintendent in charge of design and construction for the New City Department of Parks, and as head of the Department of Civil Engineering at Rensselaer Polytechnic Institute. He has acted as a consulting engineer on the United Nations headquarters buildings and was a member of the Committee on Renovation of the White House.



The Chesapeake Bay Bridge is the third longest in the world, and the first to span Chesapeake Bay. *Owner:* Maryland State Roads Commission. *Designers and Supervising Engineers:* J. E. Greiner Company. *Fabricators and Erectors of Superstructure:* Bethlehem Steel Company.

Bridge Piers Protected by Mayari R Cylinders

Fifty-seven of the concrete piers that carry the Chesapeake Bay Bridge are protected by Mayari R steel.

The circular concrete shafts of these piers are encased in cylinders of Mayari R plate, extending from a point 5 ft above the mean water line to a point 5 ft below on some, and 2 ft below on others depending upon the location. Mayari R plate is also used to enclose the concrete web members that connect some of these shafts at the water line. These plate sections were fabricated and welded on shore, then lowered into position, where they served as forms for pouring tremie concrete.

These steel sections protect the concrete from any damage that might be caused by floating objects, or by the action of salt water. Mayari R was selected because of its excellent resistance to corrosion and abrasion.

Tests made in industrial atmosphere as well as in brine solutions show that Mayari R has better corrosion-resistance than iron, carbon steel, or copper-bearing steel. For more information on the corrosion-resistance and mechanical properties of low-alloy, high-strength Mayari R get in touch with any Bethlehem Sales office.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

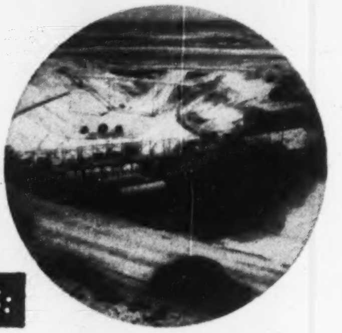
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Mayari R *makes it lighter... stronger... longer lasting*

Question:
"HOW MUCH OVER-RUN CAN BE EXPECTED?"

Answer:
IT CAN BE LESS THAN 1%!



THE RECORD SHOWS:

On the Friant-Kern Canal in San Joaquin Valley, California, (36′ bottom, perephia: 88′, .96 cubic yard concrete per lineal foot), Guntert & Zimmerman's Trimmer and Liner averaged .8 of 1% over-run.

The saving in over-run (approximately 4.2% over previous experience), amounted to a little more than was paid for the equipment. This control is possible because of the exactitude in manufacture and control found in Guntert & Zimmerman's control equipment.

EACH GUNTERT AND ZIMMERMAN MACHINE IS INDIVIDUALLY DESIGNED AND ENGINEERED FOR THE SPECIFIC NEED OF EVERY JOB

GUNTERT & ZIMMERMAN
STOCKTON, CALIFORNIA

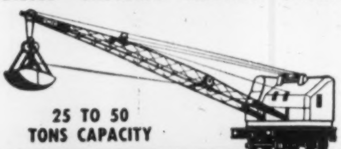
DRILLING CONTRACTORS

Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

Manufacturers, also, of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

DEPENDABLE
OHIO
LOCOMOTIVE CRANES
DIESEL • GASOLINE • ELECTRIC • STEAM



25 TO 50
TONS CAPACITY

THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

OBITUARIES

James Baird, 80, president of the James Baird Construction Co. of New York City, died in Tucson, Ariz., May 16. During a long career in the building industry Mr. Baird directed construction of the Lincoln Memorial in Washington, D. C., and also the Arlington, Va., Memorial Amphitheater, as well as the Folger Shakespeare Library and the Freer Gallery of Art in the national capital. He was likewise very active in construction work in the N. Y. metropolitan area. He had been president of the George A. Fuller Construction Co., and founded his own company in 1925.

John S. Moore, 66, retired official of the U. S. Bureau of Reclamation, died in Yakima, Wash., recently. A graduate of Washington & Lee University, Mr. Moore joined the Bureau of Reclamation in 1908. In 1931 he became superintendent of the Yakima Project. Ten years later he was director of operations for the entire bureau at Denver, Colo. Latterly he was superintendent of the Minidoka Project in Idaho.

Robert L. C. Ward, 61, civil engineer, died recently at Pasadena, Calif. He was a graduate of the University of South Dakota and attended the Sorbonne in Paris. After service in World War I, he took up engineering work with H. G. Wells at Great Falls, Mont. In 1922 he went to California and worked for Los Angeles and on Los Angeles County flood control. For 16 years after 1929 he was with the Army Engineers, New Orleans district. His last post was with the Army Engineers at Seattle.

John W. French, 59, an engineer for the Delaware State Highway Department for many years, died May 9 in Dover, Del.

Frederick H. Bass, 75, retired professor of civil engineering, Institute of Technology, University of Minnesota, died in Minneapolis, May 13. He was graduated from the Massachusetts Institute of Technology in 1901, and became a member of the University of Minnesota staff, retiring in 1943. He held teaching positions in engineering until made head of the department.

Frederick W. Amadon, 69, retired Interstate Commerce Commission Civil engineer, died at Arlington, Va., May 4. He was a M.I.T. graduate. He started out with the Connecticut Co. in New Haven before he went with the I.C.C. at Washington, D. C.

ROAD BUILT THIS WAY WILL BE TRUE!

Every Mile a **Level Mile** of Uniform Thickness

Every Mile a **Level Mile** of Uniform Density

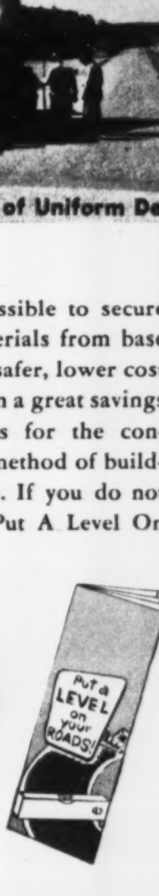
—True—not just at the shoulders where the line is guidance but true *the full width and length* of the completed road.

Start with an accurately graded subgrade. Then, using the Adnun *equipped with the Adnun Fluid Level* lay the base with any material you desire—crushed stone, gravel, stabilized mix. The Fluid Level assures a level surface the full width and length of the road. It takes out the dips that won't show under the straight edge and it will correct for any slope at any station. The maintenance of accurate thickness assures an approach to uniform density that floating mechanisms and compacting devices cannot equal! The oscillating action of the cutter bar permits material to find its natural position for better "keying".

With a true base it is equally possible to lay a true surface. Each course can be fully controlled as to thickness with the natural result in the improvement of density. There will be no thick or thin spots. There will be no hollows to collect water. The center will be as true to specification as the shoulder.

Never before has it been possible to secure such full control of laying materials from base to surface. It means longer life, safer, lower cost road for the taxpayer. It can mean a great savings in material and better estimates for the contractor. Investigate this certain method of building accuracy into modern roads. If you do not have it ask for the booklet, "Put A Level On Your Roads".

The Booklet, "Put A Level On Your Roads", presents some new thinking on thickness and density control. If you have not seen it, ask for it.



ADNUN

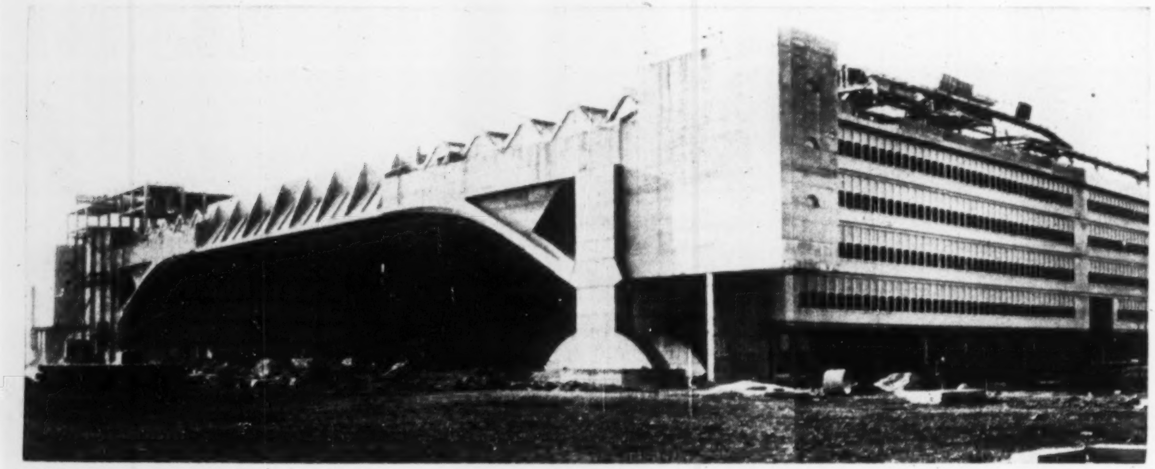
TRADE MARK REGISTERED

BLACK TOP PAVER

BLAW-KNOX

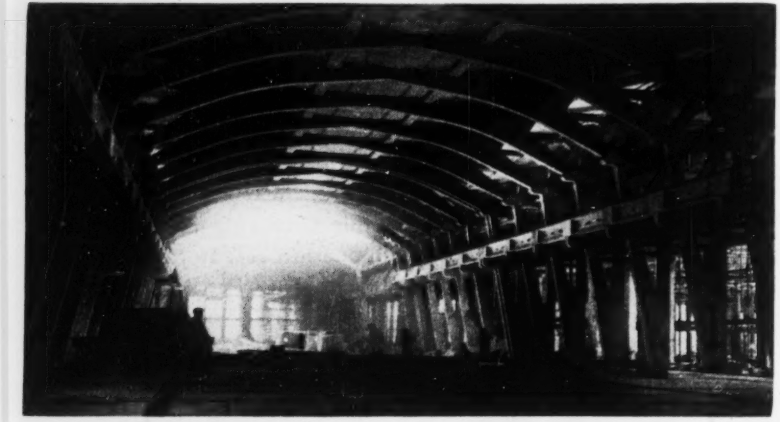
FOOTE CONSTRUCTION
EQUIPMENT DIVISION
OF BLAW-KNOX CO.
1922 State Street,
Nunda, New York

BLAW-KNOX



REINFORCED CONCRETE MAINTENANCE HANGAR in England has 1,000-ton concrete counterweight to balance cantilever beams on side of hangar entrance. Cantilevers support concrete central span over 45x300 ft opening.

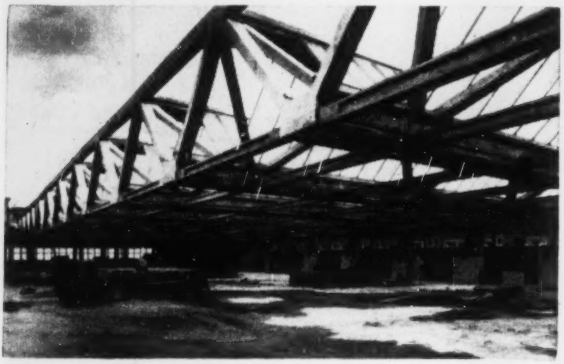
Unusual cantilevers, trusses built for concrete hangar



THREE-HINGED ARCHES of reinforced concrete form 90-ft wide central engineering gallery at the rear of hangars, and running the length of the structure. Horizontal concrete beam on side-frame brackets will support future traveling crane.

British engineers are building a unique airplane maintenance plant entirely of reinforced concrete for the British Overseas Airways Corp. at London Airport. The building is in fact composed of four hangars—two on one side and two on the other—tied together by an engineering gallery serving all four hangars and running the full length of the combined structure. Between hangars and at right angles to the engineering gallery there are workshops extending across the building. Each end of the maintenance base is occupied by four floors of offices.

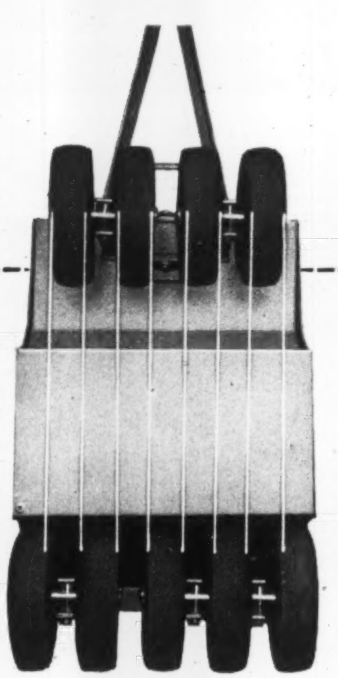
At a cost of $8.4-million, BOAC claims a big saving over a comparable design in steel for the 840-ft long, 440-ft wide, 100-ft high building. Principal structural feature consists of the eight 75-ft cantilevers, two for each



SPACE TRUSSES—triangular in cross-section—of reinforced concrete will form glazed roof for the whole structure.

CONCRETE RIGID FRAME ARCHES span workshops between hangars.

What's New in Compaction Equipment?



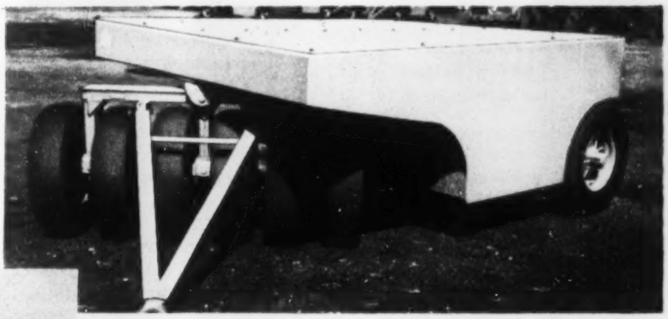
◀ NEW DEVELOPMENT BY BROS... EXTRA-WIDE TIRES NOW GIVE COMPLETE COVERAGE

Bros scoops the roller field! No more lines, ridges or marks when you work with new Bros Pneumatic Tire Rollers! New Bros wide-face tires give full compaction coverage in *one pass.* And you pay nothing extra — these new super-tires are now standard equipment on all three models, in both Straight-Wheel and Wobble-Wheel* designs. For any job from rough base compaction to seal coat rolling, you'll find a new Bros Roller does it faster and cheaper.

*Patented and copyrighted by Wm. Bros Boiler & Mfg. Co.

THREE MODELS — TWO DESIGNS ▶

Choose a 7, 9 or 13 ton maximum capacity model, and then vary working weights to suit your job. Bros Straight-Wheel design has wheels moving up and down on oscillating axles. Exclusive Wobble-Wheel* design adds a weaving, kneading motion to each wheel. Only Bros offers both.



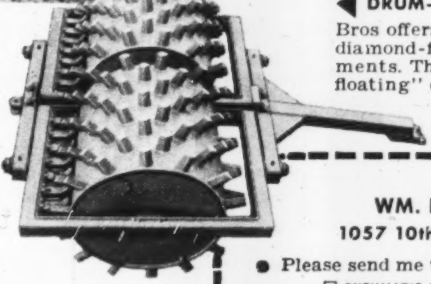
◀ GIANT "SUPER LOAD" ROLL-O-PACTORS*

These Bros "big boys" were featured recently in an *Engineering News-Record* article describing proved advances in compaction equipment. Roll-O-Pactors* have been more widely approved on the big jobs than any other compactor. 35 and 50-ton models available — working weights from 20,000 to 100,000 lbs. Rubber is the trend in compaction — and Bros is *first* in tried and true equipment.

*ROLL-O-PACTOR patents: U.S.: 2,610,557; Canada: 487,945; Mexico: 52,368

◀ DRUM-TYPE TAMPERS

Bros offers a complete line of sheepfoot and diamond-foot tampers for special requirements. They're really rugged! New "full-floating" design eliminates strains, permits individual drum oscillation and makes handling easier.



If compaction work is in your next job, it will pay you to find out what a difference Bros equipment can make in your time schedule and your profit figures. See your nearest distributor and mail the coupon for new literature.

WM. BROS BOILER & MFG. CO.
Road Machinery Division
MINNEAPOLIS 14, MINNESOTA
World's Largest Manufacturer of Pneumatic Tire Rollers

Road Machinery Division
WM. BROS BOILER & MFG. CO.
1057 10th Ave. S.E., Minneapolis 14, Minn.

● Please send me the new literature I have checked:

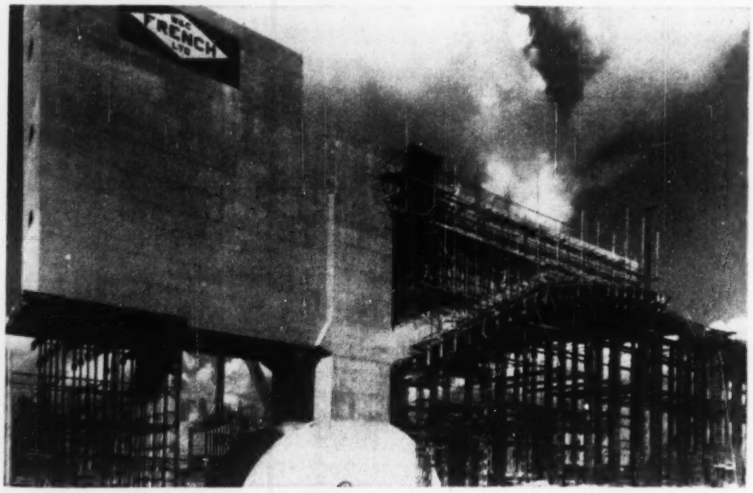
☐ PNEUMATIC TIRE ROLLERS
☐ GIANT ROLL-O-PACTORS
☐ TAMPING ROLLERS

Name____________________

Firm or Office____________________

Address____________________

City____________________ State__________



COUNTERWEIGHT FOR CANTILEVER during construction is filled with concrete in steps as work progresses.

hangar opening. Each pair of cantilevers carries a 150-ft central suspended span bridging the 300x45 ft opening. The 1,000-ton cantilever counterweights on the outside of the 66-ft high pylons at each side of the hangar entrance were filled in steps during construction to keep the loading on the pylons centralized. The hangars themselves are 144-ft in depth.

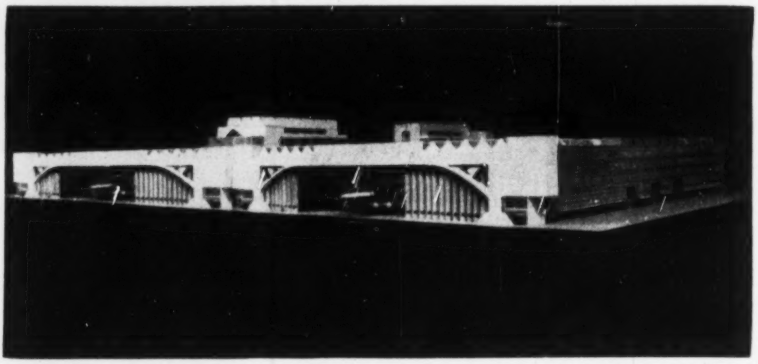
Space trusses—triangular in cross-section—of re-inforced concrete form the roof for the building. Trusses are 9 ft deep on 18-ft centers and glazing is done directly into the concrete thereby doing away with any further framing. From the main hangar doors to the back wall of the hangar the truss roof section spans 144 ft and then cantilevers back 60 ft over the center of the engineering hall. Roofs of the other three hangars are similarly constructed. Additional transverse beams along the center line of hangar roof trusses aid in distributing the load of four cranes in each hangar.

In the central engineering hall, three-hinged reinforced concrete arches span the 90-ft section on concrete side frames. These frames have large concrete brackets to support a concrete girder for a traveling crane. Two 18-ft roadways run along each side of the gallery between the back of the hangars and the side frames of the 90-ft working area arches.

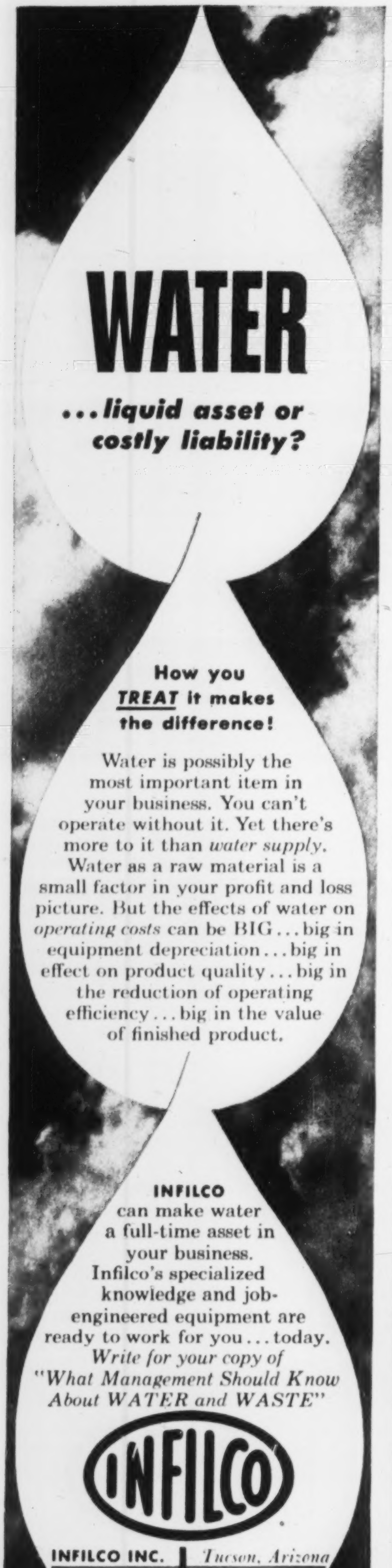
Running across the maintenance plant, transversely to the central engineering gallery, is a line of workshops spanned with re-inforced concrete rigid frame arches.

Interior walls of the building were finished in a light colored brick so that in the whole structure there is an almost total absence of paint.

The maintenance hangars were designed on 3-ft modules by Sir Owen Williams & Partners of London. It was built for BOAC by W. & C. French, Ltd., Contractors, of Buckhurst Hill, Essex, under the supervision of the Ministry of Civil Aviation.



MODEL OF HANGAR shows folding doors at entrances. Cantilevers and central suspended spans are slotted to allow the top of doors to move inside them.



WATER

...liquid asset or costly liability?

How you *TREAT* it makes the difference!

Water is possibly the most important item in your business. You can't operate without it. Yet there's more to it than *water supply.* Water as a raw material is a small factor in your profit and loss picture. But the effects of water on *operating costs* can be BIG... big in equipment depreciation... big in effect on product quality... big in the reduction of operating efficiency... big in the value of finished product.

INFILCO can make water a full-time asset in your business. Infilco's specialized knowledge and job-engineered equipment are ready to work for you... today. *Write for your copy of "What Management Should Know About WATER and WASTE"*

INFILCO

INFILCO INC. | *Tucson, Arizona*
Plants in Chicago & Joliet, Ill.
Field offices in 28 principal cities

UNIT PRICES

Waterworks, Indiana

(Continued from ENR 5/21, p. 82)

Listed below are the unit prices bid on the second two contracts of the $1,619,719 Logansport, Indiana waterworks project, Alfred LeFeber & Associates, Cincinnati, engineers. The first two contracts were reported in ENR last week. These were the $951,276 water treatment plant and low service pump station job, and the $241,170 elevated water storage tanks and reservoirs installation.

The $94,712 contract for the booster pump station and foundations for storage tanks and reservoirs was awarded to the Wolf Construction Co., Logansport, the only bidder. Besides the actual station and foundations, it provides for value vaults, piping and valves inside the vaults, interconnecting piping, high service water mains and drains.

John Dehner, Inc., Ft. Wayne, Indiana, submitted the lowest of five bids and received the $332,562 contract for water mains. The bid was entered providing for bell and spigot pipes; however, an alternate bid of $330,347 would substitute mechanical joints.

Bidders include:

Booster pump station and foundations for storage tanks & reservoirs

1C Wolf Construction Co., Logansport, Indiana	$94,712 94,407*

Bids: 4-8-53 Item	Unit	Quantity	Unit Prices 1 C
Foundations			
For 500,000 gal elevated tank	ls	1	$6,586
100,000 gal	ls	1	2,771
*75,000 gal	ls	1	2,613
For reservoirs	ls	1	15,000
Grading of sites	ls	1	1,440
Valve vaults			
Altitude valve vault	ls	1	2,106
Valve vaults	ls	1	824.00
Piping & valve inside vaults			
Altitude valve vault	ls	1	5,453
In vault at 100,000 gal tank	ls	1	923.00
In drain vaults 1 & 2	ls	1	703.00
In inlet vaults 1 & 2	ls	1	2,980
Interconnecting piping			
At 500,000 gal tank site	ls	1	1,816
At booster station & reservoir site	ls	1	1,039
High service water mains			
CI pipe, cl 150, B&S, 4"	lf	30	3.25
*CI pipe, cl 150, mech jt, 4"	lf	30	3.25
CI pipe, cl 150, B&S, 6"	lf	10	4.30
*CI pipe, cl 150, mech jt, 6"	lf	10	4.30
CI pipe, cl 150, B&S, 8"	lf	925	4.16
*CI pipe, cl 150, mech jt, 8"	lf	925	3.82
CI fittings, B&S	t	1	581.00
*CI fittings, mech jt	t	1	591.00
8" gate valves	ea	1	107.00
6" gate valves & boxes	ea	1	103.00
4" gate valves & boxes	ea	1	84.00
Valve chamber for 8" valve	ea	1	944.00
Work on existing mains	ls	1	270.00
Street restoration—gravel	sy	400	6.75
Street restoration—macadam	sy	10	4.00
Fire hydrants	ea	1	318.00
Drains			
Drains at 500,000 gal tank	ls	1	766.00
Drin from 100,000 gal tank to manhole #2	ls	1	274.00
Drains at reservoirs, booster station, ditching, etc	ls	1	3,887
Booster pump station			
Building	ls	1	13,624
Water piping & valves	ls	1	8,170
Pumps (2)	ls	1	1,441
Painting	ls	1	308.00
Electrical work	ls	1	1,292
Fencing & gates	ls	1	5,113
Grading & seeding	ls	1	7,238
Driveways	ls	1	1,146
Extra concrete	cy	10	24.00
Extra reinforcing steel	lb	1,500	0.186
Slag or stone refill	cy	40	3.885

* Alternate

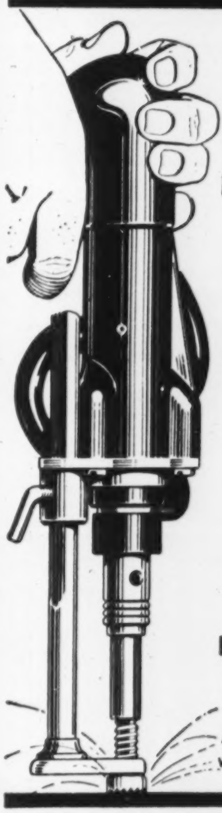
Water mains

1C	John Dehner, Inc., Ft. Wayne, Indiana	$332,562 330,347*
2	Omer Brandon & Son, Detroit, Michigan	346,529 344,134*
5	Blackford	592,101 581,239*

Bids: 4-8-53 Item	Unit	Quantity	Unit Prices 1 C	 2
F&L 4" B&S cl 150 CI pipe	lf	40	$4.62	$3.20
6"	lf	2,200	5.03	5.00
8"	lf	150	5.91	5.75
10"	lf	1,300	6.76	6.70
12"	lf	17,000	7.64	7.70
16"	lf	3,200	10.16	10.05
20"	lf	20	14.87	17.50
24"	lf	1,050	16.46	23.00
*F&L mech jt cl 150 CI pipe				
6"	lf	2,200	5.03	4.74
8"	lf	150	5.91	5.69
10"	lf	1,300	6.76	6.64
12"	lf	17,000	7.64	7.62
16"	lf	3,200	10.16	10.02
24"	lf	1,050	16.46	23.00
F&L B&S CL fittings	t	28	519.06	360.00
*F&L mech jt CI fittings	t	28	439.94	350.00
Furn & set gate valves, 4"	ea	1	43.00	36.00
6"	ea	18	59.50	50.00
8"	ea	1	87.25	80.00
10"	ea	7	150.50	120.00
12"	ea	30	189.85	152.00
16"	ea	1	717.10	750.00
20"	ea	3	972.70	1,000
24"	ea	1	1,400	1,450
Furn & set 3/4" corporation cocks	ea	124	12.08	7.50
Valve vaults	ea	5	1,124	1,000
Valve chambers	ea	57	285.90	300.00
Slag or stone backfill	cy	10	3.00	3.00
Work on exist water line	ls	1	5,634	15,000
Restore storm drain pipe				
12"	lf	100	3.60	5.00
15"	lf	100	4.25	5.50
18"	lf	100	5.05	6.50
24"	lf	100	8.25	10.00
Restore concrete paving	sy	600	8.50	8.00
Restore blacktop on conc or brick base	sy	2,000	11.00	8.00
Restore blacktop on macadam base	sy	4,000	4.10	6.00
Restore oiled gravel or loose stone paving	sy	200	1.60	4.00
Restore conc sidewalks	sf	9,000	0.60	0.60
Restore conc curb & gutter	lf	200	3.50	2.50
58" tunnel liner plate casing	lf	170	41.50	60.00
48" galv corr iron pipe casing	lf	170	52.50	60.00
Extra excavation	cy	400	2.00	1.50
Extra concrete, cl 1	cy	5	65.00	75.00
cl 2	cy	10	60.00	60.00
cl 3	cy	70	45.00	50.00
Extra reinforcing steel	lb	500	0.15	0.15
Sheeting left in place	mbm	10	100.00	100.00
Extra brick work	sf	2,000	1.50	0.50
Installing 3/4" services	lf	500	2.06	1.50
Installing 1" services	lf	150	2.17	1.75
Installing 1 1/4" services	lf	50	2.31	2.00
F&I 1 1/2" services	lf	50	2.53	3.00
F&I 2" services	lf	50	2.96	4.00
1 1/2" corporation stops	ea	5	22.34	25.00
2" corporation stops	ea	5	29.08	35.00
Shutting off abandoned services	ea	20	20.00	25.00
F&I 20" inserting valves	ea	1	1,800	1,800
12"	ea	1	564.50	500.00
10"	ea	1	473.90	500.00
8"	ea	1	350.15	400.00
16"	ea	1	1,439	1,500

* Alternate

FASTEN
IT
BETTER
AT
LESS COST
WITH
NELWELD*



SPECIFY
THE
NELWELD
METHOD FOR:

Industrial Roofing and Siding
•
Insulation Materials
•
Electrical
•
Sprinklers and Piping
•
Gunite Reinforcement

AN ELECTRIC ARC WELDING PROCESS

NELSON* construction fasteners are distributed by: United States Steel Supply, Philip Carey Mfg. Co., Southern States Iron Roofing Co. Approved by: Reynolds Metals Co., Aluminum Company of America, Johns-Manville, Armstrong Cork Co., and many others.

*Trademark NELWELD

NELSON STUD WELDING
DIVISION OF GREGORY INDUSTRIES, INC., LORAIN OHIO

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

SOON LETS CONTRACT—BUILDINGS

▲ **R. I., Providence**—HOSPITAL—Rhode Island Hospital, L. C. Gerry, chmn. Bldg. Comn., 593 Eddy St., soon lets contract, hospital, Eddy and Lockwood Sts. **$7,000,000.** Extended date. Shepley, Bulfinch, Richardson & Abbot, 1 Court St., Boston, Mass., archts. CD 4/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **The Airway Co.,** 22 W. 48 St., New York, N. Y. CA Est. **$6,000,000.** design, construct, finance 1,500 HOUSING units, for Limestone Air Force Base, LIMESTONE, ME. David Muss & E. Dalquist (sponsor), 22 W. 48 St., New York, N. Y.

▲ **B. Perini & Sons, Inc.,** 73 Montwait Ave., Framingham, Mass. CA **$3,212,000.** Senior High SCHOOL, NATICK, MASS. TOWN, Supt. Schools, Natick, Mass. Bids Apr. 15, awarded May 11. CD 4/21, under LB.

▲ **Edward R. Marden Corp.,** 233 Harvard St., Brookline, Mass. LB **$1,515,921,** est. $1,500,000. Senior High SCHOOL addn., alterations, Webster St., NEEDHAM, MASS. Town, Supt. Schools, 1330 Highland Ave., Needham, Mass. Bids May 14. CD 4/28.

▲ **Stone & Webster Engineering Corp.,** 49 Federal St., Boston, Mass. CA Est. **$12,000,000.** children's MEDICAL CENTER, Blackfar St., (Blackfar), ROXBURY, MASS. Children's Medical Center, 300 Longwood Ave., Roxbury, Mass. Campbell & Aldrich, 38 Newbury St., Boston, Mass., archts. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., engrs. CD 3/31/49.

▲ **Turner Constr. Co.,** 420 Lexington Ave., New York 17, N. Y., CA Approx. **$2,000,000,** HOME OFFICE, on 268-acre tract, BLOOMFIELD, CONN. Connecticut General Life Insurance Co., 55 Elm St., Hartford, Conn. Skidmore, Owings & Merrill, 575 Madison Ave., New York 22, N. Y., archts. CD 5/12.

Willimantic Housing Auth., 49 West Ave., Willimantic, Conn., rejected bids Apr. 27, MR 50- moderate rental HOUSING, WILLIMANTIC, CONN. LB, **$910,000.** New Bids May 18. CD 5/5, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Geo. M. Brewster & Sons, Inc., 275 W. Ft. Lee Rd., Bogota, N. J., LB, **$3,932,654,** Contract 25, grading, drainage, paving, bridges for Section 7 of Garden State Parkway from Main St., Matawan to Holland Rd., Matawan, Raritan and Holmdel Twps., Monmouth Co. Bids May 14. CD 4/27.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Ell-Dorer Contg. Co., 644 Nye Ave., Irvington, N. J. LB, **$1,106,662,** Contract 41, structures at Asbury Ave., W. Park Ave., Wyckoff Rd., Central R. R. of N. J. and Pine Brook Rd. of Garden State Parkway, New Shrewsbury, Monmouth Co. Bids May 14. CD 4/27.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Franklin Contg. Co., 12 Central Ave., Newark, N. J., CA. **$1,945,363,** Contract No. 37, 7 bridges for Section 7 of Garden State Parkway, Matawan and Raritan Twps., Monmouth Co. Bids Apr. 23, awarded **May 8.** CD 4/28, under LB.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Weldon Contg. Co., 141 Central Ave., Westfield, N. J., CA, **$1,116,501,** Contract No. 23, grading, drainage 5.778 mi. Section 8, Garden State Parkway from Chambers Bridge Rd. to Monmouth Co. Route 524N, Lakewood, Ocean Co.;

Reid Contg. Co., Box 215, Woodbridge, N. J., CA. **$1,135,034.** Contract No. 8, grading, drainage 6.959 mi. Section 8, Garden State Parkway from Toms River By-Pass to Chambers Bridge Rd., Dover and Lakewood Twps., Ocean Co. Bids Apr. 20, awarded May 8. CD 4/22, under LB.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Nilla Contg. Co., Inc., 233 North Ave., Westfield, N. J., LB. **$1,776,529,** Contract 26, grading, drainage foundations and paving 4.3 mi. Section 7 of Garden State Parkway from Sea Girt Rd. to Route 33, Wall Twp. and New Shrewsbury, Monmouth Co. Bids May 7. CD 4/20.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

S. J. Groves & Sons Co., P.O. Box 85, Woodbridge, N. J., CA, **$1,019,390,** Contract No. 11, grading, drainage for Section 10 of Garden State Parkway from E. Greenbush Rd. to Westecunk Creek, Eagleswood and Bass River Twps., Ocean Co. Bids **Apr. 23,** awarded **May 8.** CD 4/30, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., State Office Bldg., Trenton,

S. J. Groves & Sons Co., P.O. Box 85, Woodbridge, N. J., CA, **$1,524,189,** paving 3.948 mi. Section 1-B of Route 46 (Delaware Gap Freeway) from Dunnfield to Columbia, Pahaquarry and Knowlton Twps., Warren Co. Bids May 6, awarded May 13. CD **5/12, under LB.**

BUILDINGS

LOW BIDS AND CONTRACTS

Grand Avenue Associates, c/o Wuest & Bailey, archts., 32-03 30 Ave., Long Island City, N. Y. Owner Builds. **$223,000,** two 1 story FACTORIES, 74 St. south of Grand Ave., four 1 story factories, Grand Ave. west of 74 St., five 1 story factories, Grand Ave. east of 73 Pl., MASPETH, N. Y. CD 5/20/52.

▲ **Gibbs & Hill, Inc.,** Pennsylvania Station, New York, N. Y., CA Total est. **$8,000,000** design and construction POWER PLANT addn., PENNSGROVE, N. J. Atlantic City Electric Co., 1600 Pacific Ave., Atlantic City, N. J.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Portsmouth—B.A. 5/26—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11,** repairs to railroad trestle at U. S. Naval Ammunition Depot, St. Juliens Creek, **NOY 78244 S/F,** Spec. 37666. Plans deposit $10.
posit $10.

† **Fla., Miami**—BUILDINGS—B.A. 6/10—Dpt. Navy, Officer in Charge of Construction, Naval Base, S. C., repairing frame buildings, NOY 76267; repairing masonry buildings, Marine Corps Air Station, NOY 76266. Plans deposit $10 each.

† **S. C., Charleston**—FOUNDATION—B.A. 6/10—Dpt. Navy, Officer in Charge of Construction, Naval Base, Charleston, foundation for sand conditioner, Naval Shipyard, NOY 77407. Plans deposit $10.

† **S. C., Sumter**—STORM DRAINAGE—B.A. About 6/14—U. S. Eng., Custom House, Charleston, addnl. storm drainage. No. 38-081-53-30. C D9/25/51.

† **Kentucky**—B.A. 6/16—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, Beargrass Creek Pumping Plant, rein.-con., structural steel, brick, substructure 200x265 ft., superstructure 36x265 ft., fdn. will be grouted, incl. installation of govt. furnished pumping and electrical equip., sluice gates, roller gates, 700 lin. ft. 8 ft. monolithic concrete sewer, 500 lin. ft. 24 in. sewer, 49,000 cu. yd. levee embankment, Letterle Ave., closure structure, manholes, gatewells, appurtenances, Louisville, CIVENG-15-029-53-1-121. Plans deposit $25. CD 3/17/52.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

† **S. C., Sumter**—WAREHOUSE, etc.—B.A. About 6/24—U. S. Eng., Customhouse, Charleston, warehouse and 2 cold storage bldgs. addns., Shaw Air Force Base, No. 38-081-53-28. CD 9/25/51.

Ga., Warner Robins—B.A. After 7/1—City, City Hall, treatment plant, distr. sys., ground and elevated water storage facilities. $708,000. Vinson & Co., 30 14 St. N.E., Atlanta, engrs. CD 10/28.

▲ **Ga., Warner Robins**—B.A. After 7/1—City, sewage treatment plant, collection system and outfall sewers, $1,297,000. Vinson & Co., 30 14 St. N.E., Atlanta, engrs. CD 10/28.

BIDS ASKED—BUILDINGS

† **Va., Williamsburg**—LOCOMOTIVE SHED—B.A. 6/2—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, locomotive shed addn. at United States Naval Supply Center (Cheatham Annex), NOY 77116, Spec. 36572. Plans deposit $10.

Ga., Savannah—CENTRAL HEATING PLANT—B.A. 6/10—Bd. Regents, University System of Georgia, 20 Ivy St. S.E., Atlanta, central heating plant at Savannah State College, $135,000. Plans deposit $50. CD 7/3.

† **Tenn., Oak Ridge**—SCHOOL—B.A. 6/12—U. S. Atomic Energy Comn., P.O. Box E, Attention: R. J. Dunbar, Oak Ridge Constr. Area, Oak Ridge, Glenwood Elementary School rehabilitation, **Inv. No. 401-53-8A.** Plans deposit **$10.**

BUILDINGS

LOW BIDS AND CONTRACTS

Baugham Constr. Co., Luray, Va., CA. **$255,838, PLANT.** LURAY, VA. Luray Civic League, Inc., Luray, Va. Blue Bell, Inc., Jefferson Bldg., Greensboro, N. C. lessee. Bids Apr. 30. (**Correction**-owners name). CD 5/13, under CA.

Consolidated Realty Co., 4[illegible] Pryor St., Atlanta, Ga. Owner Builds, **$375,000,** OFFICE, 1401 Peachtree St., ATLANTA, GA.

C. T. Moulton, Decatur, Ga., CA, **$100,000** PLANT addn., AVONDALE ESTATES, GA. Georgia Duck & Cordage Co., Avondale Estates, Ga.

Richardson Constr. Co., 429 S. 24 St., Birmingham, Ala., CA **$300,000,** OFFICE, BIRMINGHAM, ALA. Nelson Weaver Companies, 2917 Highland Ave. S., Birmingham, Ala. CD 5/15.

J. F. Holley Co., 905 6 Ave. N., Birmingham, Ala., CA, **$600,000** electrode mfg. PLANT, MONTEVALLO, ALA. Westinghouse Electric Corp., P.O. Box 2278, Pittsburgh, **Pa.** Bids May 31. CD **4/13,** under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **O., Columbus**—NAVIGATIONAL AIDS—B.A. 6/12—U. S. Eng. 237 Fourth Ave., Huntington 18, W. Va., constr. navigational aids, Lockbourne Air Force Base, Serial No. ENG-46-022-53-36. CD 5/13.

BIDS ASKED—BUILDINGS

Ind., Columbus—GYMNASIUM—B.A. 7/1—Columbus Gymnasium Holding Co., Columbus, gymnasium, $975,000. Plans deposit $25. CD 1/13.

SOON LETS CONTRACT—BUILDINGS

Ill., Mundelein—PLANT—Callaghan & Co., Mundelein, soon lets contract, 1 story, bsmnt., 16,000 sq. ft. printing plant addn. $300,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Healy Bros. Co.,** 1818 W. Monterrey St., Chicago, Ill., CA, **$1,945,238,** Wrightwood Auxiliary sewer, Logan Blvd. from River to Whipple St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Mar. 24, Awarded Apr. 23. CD 3/9.

▲ **John C. Tully Co.,** 2608 W. Van Buren St., Chicago, 12, Ill. CA, **$2,398,405,** Kostner Auxiliary Sewers, N. & S. Lockwood from Fulton to Hirsh Sts., Iowa and Huron Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Awarded Apr. 23. CD 1/21.

▲ **Robert A. Anderson,** 4550 W. Patterson St., Chicago, Ill., CA, **$1,036,048,** paving Congress Expressway from 12 to 1 Aves., Maywood;

Peter J. Crowley Co., 12 Broadview, Maywood, Ill., CA, **$814,846,** paving Congress Expressway from 12 to 21 Aves., Maywood;

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., CA, **$1,327,402** paving Congress Expressway from 21 St. to Addison Creek Bridge, Bellwood, CHICAGO, ILL. Cook County, County Bldg., Chicago, Ill. Grand total, $3,178,296. Bids **Apr. 7, awarded Apr. 28.** CD 4/14, under LB.

G. S. Chastain, 1500 E. Garfield St., Decatur, Ill., CA, water mains;

H. R. P. Constr. Co., Fort Branch, Ind., CA, water and sewage treatment plant, NEWTON, ILL. Total cost $250,000. City, Newton, Ill. Bids Apr. 14, awarded Apr. 23. CD 4/1.

† **Pathman Constr. Co.,** 32 W. Randolph St., Chicago, 1, Ill., CA, **$525,000,** SCHOOL, Chanute Air Force Base, RANTOUL, ILL. U. S. Eng., Merchandise Mart, Chicago, 54, Ill. Awarded May 7.

BUILDINGS

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **The Brown Boveri Corp.,** 19 Rector St., New York, N. Y., CA **$3,553,700,** outdoor metal switchgear for switch yard;

General Electric Corp., River Rd., Schenectady, N. Y. CA. **$945,000,** new Ohio atomic plant, for GASEOUS DIFFUSION PLANT (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave., N. W. Wash. 25, D. C., PIKETON and WAKEFIELD, O. CD 8/13, under CA.

Vasbinder Realty Co., Chesterfield, Ind., Owner Builds, **$350,000,** HOMES CHESTERFIELD, IND.

Junedale Home Builders, 4801 Jefferson St., Gary, Ind., Owner Builds, **$700,000,** 75 HOUSES between 58 and 61, Grant and Cleveland Sts., GARY, IND. Frederic Collins, 545 Broadway, Gary, Ind., archt. Awarded May 1.

R. R. Palmer, 300 E. 38 St., Indianapolis, Ind., Owner Builds, **$500,000,** HOMES in Devon Woods Area, INDIANAPOLIS, IND.

Merrick Realty Co., S. Meridian St. at Banta Rd., Indianapolis, Ind. Owner Builds, **$500,000,** 25 or more HOMES in south INDIANAPOLIS, IND.

United Builders, Glass Block Marion, Ind., Owner Builds, $350,000, HOMES in new district along Mississinewa River, MARION, IND.

Bo-Mar Realtors, Southport, Ind., Owner Builds, **$600,000** HOMES in area SOUTHPORT, IND. T. Bowles & Sons Co., Southport, Ind., engrs.

Pepper Constr. Co., 308 W. Washington St., Chicago, 6, Ill., CA, **$300,000,** WAREHOUSE, 22 St. and Union Ave., CHICAGO, ILL. Marshall Field & Co., State and Randolph Sts., Chicago, Ill. Awarded Apr. 28. CD 3/2.

▲ **Jacobson Bros. Co.,** 20 N. Wacker Dr., Chicago, 6, Ill., CA, **$4,500,000.** 23 story, 187 unit APARTMENT, 1000 Lake Shore Dr., CHICAGO, ILL. Harold & L. Perlman, 50 Beach St., Glencoe, Ill. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, 4, Ill., assoc. archts. Sidney Morris & Assocs., 134 N. La Salle St., Chicago, 2, Ill., archts. Bids Apr. 29. CD 4/17.

J. Emil Anderson Co., 1809 Balmoral St., Chicago, 40, Ill., CA, **$750,000,** 75,000 sq. ft. FACTORY, Cicero Ave. and Le Moyne Ave., CHICAGO, ILL. Motorola Corp., 4545 W. Augusta St., Chicago, Ill. Awarded May 1.

J. & W. Construction Co., 6326 W. Jackman Ave., Chicago Ridge, Ill., Owner Builds, **$850,000,** 60 HOMES, CHICAGO RIDGE, ILL. Awarded Apr. 30.

▲ † **Corbetta Constr. Co.,** 208 S. La Salle St., Chicago, 4, Ill., CA, **$1,047,100,** two general purpose and heavy materials WAREHOUSES, NOY 76097, Spec. 35946, GREAT LAKES, ILL. P. Wks. Office, Bldg. 1-A, Ninth Naval District, Great Lakes, Ill. Bids May 10, awarded Apr. 24. CD 2-18.

Kenneth Constr. Co., 6237 Broadway, Chicago, Ill., Owner Builds, **$400,000,** 25 HOMES, near Bob-O-Link Golf Course, HIGHLAND PARK, ILL. Harold Pawlin, 111 W. Washington St., Chicago, 11, Ill., archt. Awarded May 4.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Minnesota**—B.A. About 6/16—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul, Zone 1, channel imprv. upper reach of Marsh River in Red River of the North drainage basin northwestern part of Minnesota, approx. 21 mi. reach of Marsh River exten. from point of diversion on Wild Rice River about 4 mi. east of Ada, Norman Co., CIVENG-21-018-53-70.

SOON LETS CONTRACTS—BUILDINGS

▲ **Tex., San Antonio**—TELEPHONE—Southwestern Bell Telephone Co., 105 Auditorium Circle, soon lets contract 2 story on top existing 7 story telephone bldg. incl. penthouse. $1,250,000. CD 4/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

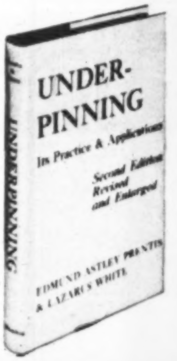
P. Lametti, 615 Drake St., St. Paul, Minn. CA. **$743,922.** sanitary sewers, RICHFIELD, MINN. Village, P. H. Haugen, clk., Richfield, Minn. CD 5/11, under **LB.**

† **Orlando Constr. Co.,** Coleman, Wis., LB. **$146,765,** Garrison switchyard approaches, Missouri-Souris Dist., Mercer and McLean Counties, Spec. DC-3922, NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo. Bids Apr. 30. CD 3/30.

W. H. Noel Constr. Co., Jamestown, N. D., LB. **$381,928.** paving, curbing, guttering, MANDAN, N. D. City, Mandan, N. D. Bids Apr. 27. CD 4/9.

† **SOUTH DAKOTA**—Bureau P. Rds., Dpt. Commerce, Denver Federal Center, Denver, Colo.

Summit Constr. Co., Rapid City, S. D., LB. **$148,773.** highway constr., Deadwood-Custer-Hot Springs, Forest Hy. Proj. 1-D3, Pennington Co. Bids Apr. 29. CD 4/21.


UNDER-PINNING
Its Practice & Applications
Second Edition Revised and Enlarged
EDMUND ASTLEY PRENTIS & LAZARUS WHITE
UNDERPINNING

UNDERPINNING

Its Practice and Applications

Second Edition—published by Columbia University Press

By EDMUND ASTLEY PRENTIS and LAZARUS WHITE

The new edition of this authoritative technical description of underpinning methods and applications for foundation construction has been extensively revised and brought completely up-to-date. The authors describe in detail actual cases of every type of underpinning.

The volume also contains an introductory treatise on soil mechanics, nearly 200 photographs and drawings, and appendices which include among other information, specifications, legal aspects of underpinning and foundation work, and a glossary of terms. Underpinning is considered the authoritative source for information in the field by engineers, architects, and contractors all over the world. **Price $10.00**

COFFERDAMS

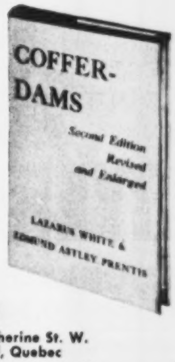
Second Edition—published by Columbia University Press

By LAZARUS WHITE and EDMUND ASTLEY PRENTIS

Cofferdams is the only engineering book devoted entirely to the design of cofferdams.

Presentation is made of theoretical considerations of the hydrodynamics of seepage forces, stream erosion, and lateral earth pressures for cofferdams on land and in water. Actual design and construction features are presented by detailed case studies of cofferdams which have come under the authors' supervision. Construction equipment, pumping stations, sheetpiling of wood and steel, bracing systems, excavation methods are among the features described. Actual cases of pitfalls and failures, as well as successes, are given.

This new edition contains 201 photographs, and drawings, a glossary of terms and a bibliography. **Price $10.00**


COFFER-DAMS
Second Edition Revised and Enlarged
LAZARUS WHITE & EDMUND ASTLEY PRENTIS

SPENCER, WHITE & PRENTIS, FOUNDATIONS

10 E. 40th St.
New York 16, N. Y.

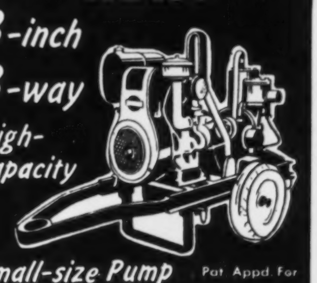
602 Hammond Bldg.
Detroit 76, Mich.

2052 St. Catherine St. W.
Montreal, Quebec

Send order to Columbia University Press, 2960 Broadway, New York 27, N. Y.

NEW!

3-inch 3-way High-capacity



Small-size Pump Pat. Appd. For

THREE PUMPS IN ONE—open sump, diaphragm and wellpoint. SELF-PRIMING — automatically operated. Vacuum cuts in and cuts out as required. THE SMALLEST WELLPOINT PUMP EVER CONSTRUCTED—rated capacity 350 gpm at heads up to 60' and suction lifts up to 28'. MAXIMUM PUMPING CAPACITY — air separator chamber removes entrapped air. GASOLINE ENGINE OPERATED—9 hp. EASILY TRANSPORTED—mounted on rubber-tired trailer. That's the completely new, in-every-way-better "complete" 3" Special. For sale or for rent. Get the facts—get this pump. For particulars—write today.

COMPLETE MACHINERY & EQUIPMENT COMPANY, INC.
36-40 11TH STREET
LONG ISLAND CITY, N. Y.

COMPLETE
WELLPOINT SYSTEMS

KORK-PAK®*

the ALL PURPOSE JOINT FILLER

- Non-extruding
- 80% Recovery after Compression
- Water Resistant
- Easily handled without breakage

Composed of cork granules bonded together with asphalt between two sheets of heavy asphalt-saturated paper, KORK-PAK is the lowest cost, non-extruding joint filler on the market. KORK-PAK is readily handled without breakage . . . and when used in conjunction with Para-Plastic Joint Seal, always provides complete joint filling and protection.

Write for details and prices
on KORK-PAK. Catalog sent
without obligation.

*KORK-PAK *is one of the many Patented products developed for the Construction Industry by Servicised Products Corp.*

SERVICISED PRODUCTS CORP.
6051 W. 65TH ST. • CHICAGO 38, ILL.

construction

STEEL

Some products in short supply
but we'll do our best to help you

REINFORCING BARS and accessories
STRUCTURALS—channels, angles, beams, etc.
PLATES—sheared and U M., Inland 4-Way Floor Plate
SHEETS—many types & coatings
TUBING—incl. welded structural
EXPANDED METAL—std. & flattened
STEEL SPIRALS, CAISSON RINGS, ETC.

RYERSON

Joseph T. Ryerson & Son, Inc.
Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Seattle, Spokane

HEAVY DUTY
DOORS
with Fingertip Control

KINNEAR Rolling Doors

The curtain of the Kinnear Rolling Door offers the best possible combination of rugged strength . . . modern appearance . . . free coiling, space-saving action . . . and shock absorbing construction. In addition, Kinnear Rolling Doors can be easily controlled by the push of a button, either at the point of entrance or at a central control center. Write for details.

The KINNEAR Manufacturing Company
1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in Principal Cities

SAVING WAYS in DOORWAYS
KINNEAR ROLLING DOORS

Brown & Root, Inc., Box 3, Houston, Tex., CA. $310,000, booster station, Ingleside; $276,000, booster station, Refugio, TEXAS. United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La. CD 2/4/52.

▲ **Morrison-Knudsen, Inc.**, 319 Broadway, Boise, Idaho CA, $5,000,000, developing Jackson Hole Valley, Grand Teton National Park, incl. hotel, tourist village WYOMING. Grand Teton Lodge & Transportation Co., c/o contractor. Gilbert S. Underwood, 2500 Wisconsin Ave. N.W., Wash., D. C., archt.

Basanda Constr. Co., 2925 N.W. 29th St., Oklahoma City, Okla., LB. $201,469, 25 mi. rural distr. lines and 2 KVA sub-stations, Lovington, NEW MEXICO. Lea County Electric Co-operative, Lovington, N. M H. N. Roberts & Assoc., 1310 Avenue Q, Lubbock, Tex., engrs. Bids May 7. CD 1/7.

▲† **J. W. Bateson Co., Inc.**, 1102 Irwin-Keasler Bldg., Dallas, Tex., LB. $2,921,182, hangar maintenance, 600,000 gal. ground-water storage tank, 6 in. water lines, pumping station, water, sanitary and storm sewers, Walker Air Force Base, Inv. No. Eng-29-005-53-113, ROSWELL, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids May 7. CD 4/20.

BUILDINGS

LOW BIDS AND CONTRACTS

James T. Taylor & Son, P.O. Box 225, Fort Worth, Tex. CA. $397,514, brick, tile, concrete haydite block East Side Elementary SCHOOL, ARLINGTON, TEX. Arlington Independent School Dist., Arlington, Tex. A. George King & Assoc., 719 Penn St., Fort Worth, Tex., archts. Bids May 12.

▲ **Theodore W. Berenson**, c/o Irving Klein, archt., 1317 Austin St., Houston, Tex. and John Graham, archt., Dexter-Horton Bldg., Seattle, Wash., cancelled bids Gulfgate SHOPPING CENTER, 850,000 sq. ft. $10,000,000; 2nd unit SHOPPING CENTER, $5,000,000; water sys., $40,000; auto parking facilities for 6,000 cars, $190,000. HOUSTON, TEX. CD 3/20.

▲ **Schlumberger Well Surveying Corp.**, 5000 Gulf Freeway, Houston, Tex. Owner Builds. $5,500,000. 241,564 sq. ft. OIL PLANT; $150,000, general STORAGE or WAREHOUSING UNIT in plant area; $150,000, MACHINE and EQUIP. REPAIR SHOP, HOUSTON, TEX. Grand total $5,800,000. CD 5/14.

R. E. McKee, General Contractor, Inc., Box 1706, Santa Fe, N. M., CA. $509,100. BANK, SANTA FE, N. M. First National Bank, 57 Shelby St., Santa Fe, N. M. Bids Apr. 20. CD 5/5, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Ore., Coquille—B.A. 6/8—City, City Hall, sewage treatment plant. Plans deposit $40. Cornell, Howland, Hayes & Merryfield, Corvallis, engrs. CD 2/4.

Ore., Myrtle Point—B.A. 6/8—City, City Hall, sewage treatment plant. Plans deposit $30. Cornell, Howland, Hayes & Merryfield, Corvallis, engrs.

† **Idaho, Boise**—HANGAR—B.A. 6/18—U. S. Eng., City-County Airport, Walla Walla, Wash., hangar and airfield facilities, Gowen Field, Eng-45-164-53-59. Plans deposit $200. F. S. Tandy, City-County Airport, Walla Walla, Wash., engrs. CD 2/17.

BIDS ASKED—BUILDINGS

Wash., Seattle—SCHOOL—B.A. 6/9—Highline School District 401, 253 S. 152 St., 4 rein.-con. Sylvester Junior High School bldgs. $836,000. Plans deposit $25. Steinhart, Stanley & Theriault, Medical Arts Bldg., Seattle, Zone 4, archts. CD 11/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,

Murphy Bros., E. 3728 Broadway, Spokane, Wash., CA, $121,291, roadway and crushed rock surf. 5.626 mi. Selle Road, Bonner Co. Bids May 5, awarded May 6. CD 4/16.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

Bentson Contg. Co., 2800 S. Central Ave., Phoenix, Ariz., LB, $119,916, furnishing, placing course and aggregate base, bit. surf. tr. 7.4 mi. Clifton-Springerville Rd., Greenlee Co. Bids Apr. 16 rejected. CD 5/6, under LB.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

L. M. White Contg. Co., Box 6008, Tucson, Ariz., LB, $122,586, select material, aggregate base, bit. road mix 2 sections, Craycroft Rd., Pima Co.;

Tanner Bros., 731 N. 19 Ave., Phoenix, Ariz., LB, $241,590, select material aggregate base, bit. plant mix 3 1/3 mi. Ehrenburg-Wickenburg, Maricopa Co.;

M. M. Sundt Constr. Co., Box 2592, Tucson, Ariz., LB, $243,354, select material, aggregate base, 8.3 mi. McNary-Eagar Hy., Apache Co. CD 6/12.

WASHINGTON—State Hy. Comn., Olympia,

A. V. Phillips, 1400 W. Nickerson St., Seattle, Wash., LB. $103,834, reconstr. timber portions of Columbia River Bridge No. 10-BC1, at Brewster, Douglas and Okanogan Counties;

J. E. Alexander, Vashon, Wash., LB. $113,676, steel girder undercrossing on Hy. 1 for U. S. Army Ry. together with clearing, grading, draining 0.263 mi. Snohomish Co. Bids May 12. CD 4/29.

▲ **WASHINGTON**—State Hy. Comn., Olympia,

A. H. Beaty, South Bend, Wash., LB. $139,302, plant mix bit. 0.805 mi. Hy. 13-A, Johns River vicinity F.A.S. No. AS 0250 (2), Grays Harbor Co.;

Peter Kiewit Sons Co., Longview, Wash., $683,095, b. conc., c. conc. 6.39 mi. Hy. 2, Ollalia Creek to Hyak, King and Kittitas Counties;

Scarsella Bros., 2207 S. 146 St., Seattle, Wash., LB. $135,151, clearing, draining, grading 1.06 mi. Hy. 1, Foster Creek to Cowlitz River bridge, F.A.P. No. I-001-2 (19), Unit 1, Lewis Co.;

Asphalt Paving & Eng. Co., P.O. Box 106, South Tacoma, Wash., LB. $108,655, non-skid seal treatment, bit. and b. conc. 5.323 mi. Hys. 1, 5 and 5-D, Tacoma to Buckley, Pierce Co.;

N. Fiorito Co., 844 W. 48 St., Seattle, Wash., CA. $158,613, surf., bit. 7.9 mi. South Fork Stillagumaish Hy., Proj. U D5-,E1,F 2,G1, Snohomish Co.;

N. G. Johanson, E. 1828 Trent St., Spokane, Wash., LB. $83,371, non-skid seal tr. 90.57 mi. Hys. 2, 7, 22 and 4-B, Spokane to Junction with Hy. 11, Spokane, Lincoln, Stevens and Adams Counties. Bids May 12. CD 4/29.

† **U. S. Eng.**, City—County Airport, Walla Walla, Wash. rejected bids May 5, well with pump, pumphouse and irrigation system, Wallula Cemetery, CIVENG-45-165-53-100, WALLULA, WASH. New Bids May 21. CD 4/9.

▲† **McDonald Bros.**, 6014 West Adams Blvd., Los Angeles, Calif. LB. $1,106,843, barracks, mess-administration bldg., Edwards Air Force Base, ENG-04-353-53-123, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 12. CD 5/4.

▲ **Daley Corp.**, Box 67 N. Park Station, San Diego, Calif., LB. $1,121,324, imprv. Wabash Blvd. Section "B", SAN DIEGO, CALIF. City, Civic Center, San Diego, Calif.

BUILDINGS

LOW BIDS AND CONTRACTS

M. P. Butler Co., 3419 13 Ave. S.W., Seattle, Wash., LB. $542,713, sand and gravel PLANT, STEILLACOOM, WASH. Glacier Sand & Gravel Co., 5975 E. Marginal Way, Seattle, Wash. Kaiser Engineers, Kaiser Bldg., Oakland, Calif., engrs. CD 5/11.

Mead & O'Donnell, 7769 Melrose Ave., Los Angeles, Calif., LB. $344,893, 1 story, frame, stucco Newcastle SCHOOL, Reseda, LOS ANGELES, CALIF. Los Angeles Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids May 8. CD 4/29.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Montreal—B.A. 7/7—Municipality, City Hall, supply, install one pump and 3 pumping units, incl. motor controls at Central and McTavish Pumping Station. H. A. Gibeau, City Hall, city engr. CD 5/11.

BIDS ASKED—BUILDINGS

▲ **N. B., Woodstock**—HOSPITAL—B.A. 6/12—Carleton Memorial Hospital Bd., J. D. Winslow, chn., Woodstock, 3 story, penthouse, X-shaped, 49x206 ft., 77x191 ft. memorial hospital, 22x60 ft. boiler house with connecting tunnel, $1,000,000. Plans deposit $50. Govan, Ferguson, Lindsay, Kaminker, Langley & Keanleyside, 17 Davenport Rd., Toronto, Ont., archts. CD 11/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

F. Jobin, Inc., 925 Ste. Therese St., Quebec City, Que., CA, $175,000, 2½ story, 50x140 ft., concrete, stone greenhouse, ST. NICOLAS, QUE. Donald Ross, 14 Ste. Foye Rd., Quebec City, Que. H. Ross Wiggs, 4350 W. Sherbrooke St., Montreal, Que., archt.

North West Iron & Eng. Co. Ltd., Regina, Sask., CA, $106,938, imprv. water treatment in filtration plant, REGINA, SASK. Municipality, City Hall, Regina, Sask. Bids Apr. 20. CD 4/16.

Concrete Products Ltd., Regina, Sask., CA, $160,000 sewers in Transcona and Parkdale Area, REGINA, SASK. Municipality, City Hall, Regina, Sask. Bids Apr. 2[illegible]. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Kenney Constr. Co. Ltd.**, Old Ferry Rd., Yarmouth, N. S., CA, $1,800,000, T-shaped 5 story, 44x256 ft., 44x100 ft. HOSPITAL, 3 story, 67x90 ft., separate POWERHOUSE and LAUNDRY, NEW GLASGOW, N. S. Aberdeen Hospital Comn., New Glasgow, N. S. McDougall & Friedman, 1235 McGill College Ave., engrs. E. J. Turcotte, 1478 St. Catherine St. W., Montreal, Que., archt. Awarded May 11. CD 4/14/48.

Harvey W. Foster, 132 Riverside Dr., Oakville, Ont., Owner Builds. $450,000, 3 story, 55x252 ft., concrete, masonry frame, brick APARTMENT, OAKVILLE, ONT.

W. H. Yates Constr. Ltd., 400 Wellington St., Hamilton, Ont., CA, $412,032, steel, stone, concrete central WORKSHOP, SERVICE BLDG. included Shirley Bay, OTTAWA, ONT. Defence Research Bd., Ottawa, Ont. Bids Apr. 28. CD 4/15.

Dansereau Ltd., 1387 Bernard St. W., Montreal, Que., CA, HOSPITAL addn. St. Matthew St., ST. LAURENT, QUE. Hospital of Our Lady of Hope, Ville St. Laurent, Que. Duplessis & Assocs., 822 E. Sherbrooke St., Montreal, Que., archts.

J. A. Verret Ltd., 86 N. Wellington St., Sherbrooke, Que., CA, $350,000, 3 story, 41x67 ft., rein.-con., stone MONASTERY, Galt St., SHERBROOKE, QUE. Reverend Dominican Fathers, Sherbrooke, Que. Cote & Assocs., 189 Wellington St., Sherbrooke, engrs. A. Royer, 358 Woodward Ave. Sherbrooke, Que., archt.

C. M. Miners Constr. Co., 615 Main St., Saskatoon, Sask., CA, $500,000, 100,000 sq. ft., WAREHOUSE OFFICE, 33 and Ontario Sts., SASKATOON, SASK. Marshall-Wells Co. Ltd., Ontario Ave. and 24 St., Saskatoon, Sask. Bids May 1. CD 4/8.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **ALASKA**—B.A. 6/16—Alaska Road Comn., Dpt. Interior, 4th and Harris St., Juneau,
grading, drainage 19.84 mi. Glenn Hy. Sect. D3. Plans deposit $10. J. D. Argetsinger, c/o owner, ch. engr. CD 3/3/52.

Proposed Projects

WATER SUPPLY

Ala., Huntsville—City, City Hall, WW imprvs. **$778,500,** G. W. Jones & Sons, Huntsville, consult. engrs. CD 2/2/50.

Calif., Santa Barbara—City, City Hall, voted **$942,000** bonds WW system imprvs. James M. Montgomery, 15 N. Oakland Ave., Pasadena, consult. engr. CD 3/31.

Mich., Harbor Beach—City, water sys., filtration plant, water mains, pumping structure, misc. **$500,000.** Hubbell, Roth & Clark, Inc., 2640 Buhl Bldg., Detroit, consult. engrs.

▲ **Neb., Lincoln**—City, City Hall, voted **$8,500,000** bonds, water sys. imprvs., exten. D. L. Erickson, Lincoln, city engr. CD 4/20.

▲ **O., Dayton**—Comrs. Montgomery Co., Court House, water distr. sys., for Northridge district, covering 1,730-acre area. **$1,256,209.** Edwin D. Smith, co. sanitary engr. CD 8/17/50.

Tenn., Manchester—City, WW imprvs. **$668,000,** Howard, Hickerson & Jordan, Inc., 304½ Third Ave. N., Nashville, consult. engr.

Tenn., Tullahoma—City, WW imprvs. **$728,000,** Greeley & Hansen, 220 S. State St., Chicago, Ill., consult. engrs. CD 5/3/51.

SEWERS, WASTE DISPOSAL

▲ **Ala., Huntsville**—City, City Hall, sanitary sewerage imprvs. **$1,000,000.** G. W. Jones & Sons, Huntsville, consult. engrs.

Fla., Coral Gables—City, City Hall, addnl. storm sewers. **$800,000.** CD 11/9/44.

▲ **Ill., Decatur**—Decatur Sanitary District, 600 Powers Lane, bond election May 26, interceptor sewerage sys. **$4,200,000.** Warren & Van Praag, 253 S. Park St., engrs. CD 11/29/50.

▲ **Ia., Ottumwa**—City, City Hall, trunk sewers and sewage plant. **$2,500,000.** Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 1/15/47.

▲ **O., Dayton**—Comrs. Montgomery Co., Court House, sewerage sys. for Northridge Dist. **$1,239,290.** Edwin D. Smith, co. sonitary engr. CD 8/17/50, under Water Supply.

BRIDGES

Ga., Rome—Floyd Co., County Clerk, Court House, bond election June 16, three bridges, **$500,000.**

O., Hamilton—City, City Hall, and Butler Co., Court House, widen Columbia Bridge. **$400,000.**

STREETS AND ROADS

Fla., Sarasota—City, City Hall, voted bonds, street imprvs. **$600,000.** CD 5/11.

EARTHWORK, WATERWAYS

▲ **New Hampshire**—State, Dpt. P. Wks. Hys., State House Annex, Concord, sea wall from Ashworth Hotel to Boar's Head, Hampton Beach, **$1,000,000.**

B. C., Vancouver—Dominion Govt., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging, First Narrows. **$750,000.** R. Blais, c/o owner, engr.

▲ **Ont., Brantford**—Grand River Conservation Comn., E. F. Roberts, secy., Guelph, Conestogo Dam, 1,800 ft. wide, base below bedrock, near Glen Allen, 22 mi. west of Guelph. **$5,409,000.** H. G. Acres & Co., Niagara Falls, consult. engrs. CD 6/30/44.

AIRPORTS

▲ **Calif., Los Angeles**—AIRPORTS addns., etc.—City, City Hall, **$33,255,000** bond election May 26, airports addns., imprvs. CD 5/16/45.

▲† **N. J., Wrightstown**—DISPENSARY DENTAL CLINIC—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., dispensary dental clinic, blood processing center, McGuire Air Force Base. **$1,100,000.** McCormick Lewis & Kapf Assocs., 1321 Arch St., Phila., archts. and engrs. CD 5/9/52.

LATIN AMERICA

▲ **Mexico, Guadalajara**—State-Federal Govts., c/o Comision del Rio Lerma, P. de la Reforma, 69, Mexico City, plans WW. **$4,650,000.** Ing. Elias Gonzalez Chavez, c/o owner, consult. engr. CD 4/1/48.

▲ **Mexico, Madin**—Comision Hidraulica del Valle de Mexico, P. de la Reforma, 69, Mexico City, plans storage dam. **$1,150,000.**

RUBBING CEILINGS?

DO IT
FASTER
EASIER
BETTER
CHEAPER
WITH A

GIRAFFE

- With the grinding head automatically held against the ceiling at the proper pressure, the operator needs only to guide the machine.

FOR CEILINGS UP TO 12 FEET

GIRAFFE®

CONCRETE GRINDING CORP.
300 STRAIGHT ST. PATERSON, N. J.

"We loaded trucks without booming or moving the crane..."

Yes—now you can do things with clamshells you never did before, and do them right from the cab—with the

"Tag Master"

TOPS IN BUCKET CONTROL

No man needed at the truck to guide the bucket that's TAG MASTER controlled. With this tag line pull (UNIFORM at all levels and adjustable to any job) you can turn, spin, snub or cast your clamshell direct from the cab. You get EXACT spotting, with a light drop that adds years to bucket life. In addition, the TAG MASTER can be used as a dipper trip. Send coupon now for more details of this combination tag line winder and dipper trip—and send it now.

MORIN COMBINATION TAGLINE WINDER AND DIPPER TRIP

1. Less Booming
2. Less Swinging
3. Less Travel
4. Control of clamshell
5. Can be used as a Dipper Trip
5. Increased performance
7. Low cost operation

MORIN MFG. CO., INC. 946 Elm Street
West Springfield, Mass.

Send "TAG-MASTER" details to—

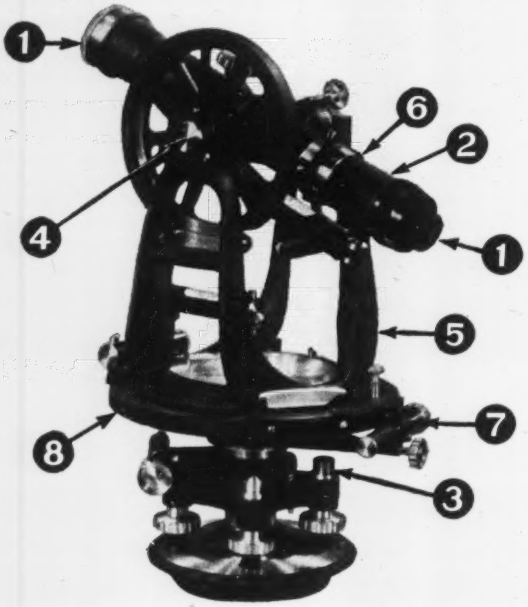
Name ....

Address ....

Make—Size & Model of Machine

Ask the man behind the gun...

How these 8 major design advances make White the top engineers' transit



1. Coated optics.

2. An optics system redesigned to achieve more effective aperature.

3. Covered leveling screws.

4. Improved telescopic bearings.

5. New "U" design standard.

6. Glass Reticules.

7. Improved design and hand-lapped tangent screws.

8. Centrifugal castings.

TOMORROW as in the past, White Engineers' Transits will continue to offer the most up-to-date design and construction features. This results in greater accuracy, longer instrument life, easier use. To get all the details write for Bulletin 1053. DAVID WHITE COMPANY, 315 W. Court Street, Milwaukee 12, Wis.

We offer the most expert REPAIR SERVICE on all makes, all types of instruments.

DAVID
WHITE
COMPANY

PUBLIC BUILDINGS

▲ **Ala., Birmingham**—NURSES HOME, etc.—University of Alabama, Tuscaloosa, nurses home, **$800,000.** remodeling out-patients clinic, **$500,000** for University of Alabama Medical Center.

▲ **Ala., Mobile**—COURT HOUSE—Mobile Co., Court House, plans by Henry J. Apfelbach, 80½ St. Francis St., court house, **$4,000,000.** CD 3/52.

Ala., Mobile—SCHOOL—Mobile Co. Bd. Educ., Court House, plans by Platt Roberts & Co., Merchants National Bank Bldg., Central Junior High School. **$835,000. CD 11/1.**

Calif., Downey—SCHOOLS—Gallatin School District, 9513 S. Lexington Rd., plans by Anthony & Langford, T. V. Anthony II, 1316 E. Rosecrans Ave., Compton, six 1 story, 37000 sq. ft., stucco Tweedy Lane School buildings, **$500,000.**

▲ **Calif., Paramount**—SCHOOL FACILITIES—Paramount Unified School District, 15324 California Ave., **$2,750,000** bond election June 18, school facilities.

Conn., Middletown—SCHOOL—Town, Bd. Educ., Town Hall, plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, elementary school, Wadsworth Long Lane Section, **$850,000.**

Ga., Augusta—SCHOOL—Richmond Co. Bd. Educ., Court House, plans by Lyman H. Robertson, 633 Telfair St., Silvercrest—Richmond Hill School. **$500,000.**

▲ **Ga., Cairo**—SCHOOLS—Grady Co. Bd. Educ., Cairo plans by Southern Eng. Co., 1000 Crescent Ave. N. E., Atlanta, Washington Consolidated School, **$630,000;** Cairo High School, **$500,000;** Whigham Elementary School, **$340,000.** CD 4/1.

▲ **Ga., Dalton**—HOSPITAL—City and Whitfield Co., $450,000 bond election June 3, hospital. **$1,250,000.** CD 4/20.

Ga., Rome—HOSPITAL—Floyd Co. bond election date extended to June 16, hospital addn. **$500,000.** CD 5/6.

Ga., Knoxville—HIGH SCHOOL—Bd. Educ., Knoxville, plans by J. W. Radotinsky, 1401 Fairfax Trafficway, high school. **$650,000.**

▲ **Ga., Waycross**—HOSPITAL—Ware County, voted $500,000 bonds, hospital, **$1,500,000.** Gregson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts. CD 4/14.

Ill., Elmhurst—SCHOOLS—School District 46 c/o Arthur Hawthorne School, plans by Spencer B. Cone & Chas. Dornbusch, 100 N. LaSalle St., Chicago, Zone 2, West Ave. School, and Poplar School, Crescent Ave. **$880,000.**

Ind., Gary—SCHOOL—School City of Gary 524 Garfield St., plans by Beine Hall & Curran, 31 E. 5 St., Gary, Ind., Pulaski High School addn. **$500,000.**

▲ **Ky., Louisville**—HOSPITAL—City, 303 E. Chestnut St., plans by Samuel Hannaford & Sons, Dix Terminal Bldg., Cincinnati, O., rehabilitation of general hospital **$3,000,000.** CD 11/10.

▲ **La., Lake Charles**—COURT HOUSE and JAIL—Calcasieu Parish Police Jury, **$3,000,000** bond election May 19, court house and jail addn. Dunn & Quinn, Lake Charles, archts. CD 1/14.

▲ **Mich., Ann Arbor**—HOSPITAL—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, children's hospital institution for psychiatric treatment, **$2,000,000.** Site changed. CD 2/5, under Mich., Northville.

▲ **Mich., Farmington**—SCHOOLS—Walled Lake Consolidated School Dist., Farmington, brick, steel, concrete high school, Oakley Park Rd. and S. Commerce St. serving West Bloomfield, Commerce, White Lake, Farmington and Novi. **$1,000,000;** elementary school, Twin Beach Area. **$320,000.**

▲† **Minn., Minneapolis**—ARSENAL IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha, Neb., Twin Cities Arsenal bldgs., utilities for constr. of small arms ammunition near here. **$1,140,000.**

▲ **Mo., Ferguson-Florissant** — SCHOOL — Reorganized School Dist. R-2, St. Louis Co. Bd. Educ., Mildred C. Jeske, secy., 200 Church St., Ferguson, Zone 21, voted **$1,000,000** bonds, May 5, elementary school southside of distr., elementary school near U. S. 66 and Florissant Rd., addnl. bldg. for Junior-Senior High School. CD 4/30.

▲ **Mo., Kansas City**—SERVICE CENTER—City, c/o Reed McKinley, dir. Dpt. P. Wks., City Hall, municipal service center for Dpts. Polics, Fire and Public Works for North Kansas City, 4 main structures on 8 acre tract. **$1,095,000.**

Mo., Riverview Gardens (St. Louis 15 P.O.)—SCHOOL—Riverview Gardens School Dist., Bd. Educ., Everett Lamaster, supt. Schools, 587 Chambers St., Zone 15 plans by Walter P. Manske, 9947 Riverview Blvd., St. Louis, Zone 15, 3 elementary schools in Glasgow Village, Hathaway Hills, and Moline areas, **$800,000.** CD 4/30.

Mo., St. Charles—SCHOOL—Bd. Educ., St. Charles School Dist., **$850,000** bond election June 9, Junior High School, Kingshighway and Waverly St., imprvs., addns. to school bldgs.

N. C., Cullowhee — PHYSICAL EDUCATION — Western Carolina Teachers College, Cullowhee, physical education bldg. **$600,000.**

▲ **N. C., Fayetteville**—CIVIC CENTER—City, civic center. **$1,000,000.**

▲ **N. C., Gastonia**—SCHOOL—Gaston Co. Bd. Educ., **$5,600,000** bond election June 20, school imprvs. **CD 5/5.**

O., Bexley—SCHOOLS—Bexley School Dist., Bexley voted **$750,000** bonds May 5, schools. CD 4/14.

O., Bowling Green—SCHOOLS—Bd. Educ., Bowling Green, plans by Strong, Strong & Strong, Lima, 2 grade schools. **$970,000.** Voted bonds Feb. 10. CD 1/9.

▲ **O., Cleveland Heights**—HIGH SCHOOL—Bd. Educ., 1749 Lee Rd., bond election Nov. 3, 24-classroom addn. to Junior high school and elementary schools addns. **$3,250,000.**

▲ **O., Columbus**—HOUSING—Columbus Metropolitan Housing Auth., 425 W. Rich St., 544 unit, low-rent public housing in Market-Mowhawk' slum clearance area. **$7,000,000.** CD 11/19.

▲ **O., Galion**—SCHOOLS—Galion School Dist., Galion, defeated **$1,350,000** bonds May 5, schools.

▲ **O., Mansfield**—SCHOOLS—Bd. Educ., Mansfield, defeated bonds May 5, school program, 5 new schools and additions to 5. **$4,400,000.** CD 3/24.

▲ **O., Parma**—SCHOOLS—Parma Bd. Educ., Parma voted **$3,500,000** bonds May 5, school addns., imprvs. CD 3/31.

O., Whitehall (Br. Columbus)—SCHOOL—Truro Local School Dist., Whitehall, voted **$785,000** bonds May 5, Junior-Senior High School. CD 4/3.

R. I., Cumberland—SCHOOL—Town, G. Frank Hanaway, clk., Town Hall, Broad St., Valley Falls, plans by Frederick T. Norton, assoc. archt., 442 Spring Green Rd., Warwick, school, Cumberland Hill, Edgemere Sect. **$500,000.** C. W. Riva, 511 Westminster St., Providence, consult. engr. CD 3/24.

Tenn., Fayetteville—HIGH SCHOOL—Lincoln Co. Bd. Educ., Fayetteville, plans by Taylor & Crabtree, 1908 Church St., Nashville, brick, steel, concrete high school. **$750,000.**

▲ **Tex., Austin**—School—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., State School for Deaf, 64 cottages. **$6,000,000.** CD 2/25.

▲ **Tex., Austin**—DORMITORIES—University of Texas, Admin. Bldg., plans by Wilson, Morris & Crain, 3330 Graustark St., Houston, dormitory for law and graduate men students, **$967,000;** plans by Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., women's dormitory, **$1,200,000.** Mark Lemmon, 1210½ Main St., Dallas, superv. archt. CD 10/28.

▲ **Tex., Corpus Christi**—SCHOOLS—Corpus Christi Independent School Dist., 515 N. Carancahua St., voted bonds May 9, Elementary School No. 1, **$300,000;** Elementary School No. 2, **$325,000;** Elementary School No. 3, **$350,000;** Junior High School, **$700,000;** Ebony and Wynne Schools, **$325,000.** CD 5/1.

▲ **Tex., Dallas**—SCHOOLS—Dallas Independent School Dist., 3700 Ross St., plans by Hidell & Decker, 2814 Franklin St., Victor H. Hexter Elementary School, **$560,000-$700,000;** plans by J. A. Pitziner, Southland Life Bldg., N. R. Crozier Technical High School, physical educ. bldg. **$300,000;** plans by Mark Lemmon, Thomas Bldg., Hillcrest High School addn. **$512,000.** CD 10/24.

▲ **Va., Fairfax**—HIGH SCHOOL—Fairfax Bd. Educ., Fairfax, plans by Dixon & Norman, 1103 E. Main St., Richmond, McLean High School, McLean. **$1,300,000.** CD 2/9.

▲ **W. Va., Logan**—HIGH SCHOOL—Logan Co., voted bonds, high school. **$1,650,000.** CD 12/18/50.

▲ **Ont., Chatham**—HOSPITAL—Chatham Public General Hospital, Chatham, plans by Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 515 Jarvis St., Toronto, hospital addn. in 3 plans (1) 4 story, bsmnt. alterations to existing building, **$2,620,000,** (2) 4 story, bsmnt., two top floors unfinished, less power and laundry addn., **$1,806,500,** (3) 2 story, bsmnt. **$1,241,000.** H. H. Angus & Assocs., Ltd., 615 Yonge St., Toronto, consult. engrs. CD 10/8.

▲ **Ont., Kingston**—HOSPITAL WING—Kingston General Hospital Bd. Governors, Kingston, plans by Drever & Smith, 81 Brock St., Walter T. Connell hospital wing to General Hospital. **$2,000,000.** CD 1/23/52.

▲ **Que., Montreal**—HOSPITAL WING—Bd. Governors St. Luke's Hospital, 1058 St. Denis St., plans by Perrault & Gadbois, 3737 Van Horne St., 300-bed hospital wing. **$3,500,000** CD 5/18/44, under Commercial Buildings.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham—BANK—Federal Reserve Bank System**, 5 Ave. N., plans by Toombs & Co., 127 Walton St. N.W., Atlanta, Ga., bank addn., **$1,000,000.**

▲ **Calif., San Francisco**—DORMITORY—University of San Francisco, 2130 Fulton St., men's dormitory. **$1,500,000.**

Conn., New London—APARTMENTS—Londonderry, Inc., 74 W. 190 St., New York 35, N. Y., plans by Oscar Silverstone, 153 Pierrepont St., Brooklyn, 86-family garden apartments, **$500,000.**

▲ **Md., Baltimore**—APARTMENT—Henry A. Knott, Inc., 2406 Greenmount Ave., Zone 18, plans by Kenneth C. Miller, 2203 N. Charles St., brick, concrete, steel apartment, incl. 132-162 units, 8½ acres, **$1,000,000.**

▲ **Md., Baltimore**—SHOPPING CENTER—Mondawin Corp., 135 E. Baltimore St., Moss Rouse Corp., 345 St. Paul Pl., McKinney W. Egerton, atty., Mathieson Bldg., and Harry Bart, 210 E. Lexington St., plans by Fisher, Williams, Nes & Campbell, 1020 St. Paul St., Zone 2, Mondawin Shopping Center and parking area incl. 8 or 10 story professional bldg., 2 department stores, large food market, about 24 shops, service station, covered walkways, serviced by underground truck terminal, **$8,000,000,** Van Rensselaer Saxe, 1701 St. Paul St., Zone 2, structural engr. Egli & Gompf, Inc., 1019 N. Calvert St., Zone 2, mech. engr. Daniel Kiley, Charlotte, Va., design consultant. CD 8/5.

▲ **Md., Camp Detrick**—HOUSING—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C., construct, manage and finance military housing, **$1,824,000,** Mills & Petticord, 3308 14 St. N.W., Wash., D. C., archts.

Mass., Woburn—RESIDENCES—Massachusetts Builders, Inc., H. A. Tambone, 6 Pleasant St., Malden, 52 residences, Washington St. **$600,000.**

▲ **Mich., Detroit**—HOUSING and REDEVELOPMENT—Housing Corp. of America, subsidiary of Warner-Kanter Companies, 1951 Chaucer St., Cincinnati, O., housing and redevelopment of 21 block area in downtown section of Detroit. **$30,000,000.**

▲ **Mich., Midland**—CHURCH—Blessed Sacrament R. C. Parish, Camil Klos, pastor, Midland, plans by Paul A. Brysselbout, 1003 Washington Ave., Bay City, church, elementary school, high school, rectory, convent, Ashman and Swede Sts. **$1,000,000.**

▲ **Minn., Minneapolis**—SHOPPING CENTER—Allied Stores Inc., 401 Fifth Ave., New York, N. Y., parent firm of L. S. Donaldson Co., 6 St. and Nicollet Ave., Minneapolis, Minn., store operators, plans by John Graham, 1501 Dexter Horton Bldg., Seattle, Wash., and D. Griswold, assoc. archts., 80 S. 7 St., Minneapolis, shopping center, 76 St. and Humboldt Ave. South, Richfield, **$10,000,000.** CD 10/8.

Mo., Kansas City—MOTEL—True N. Milleman, 3712 Johnson Dr., Kansas City, Mo., plans by Harry L. Wagner, 15 W. 10 St., Kansas City, Mo., 42 unit motel utilities, parking area. **$500,000.** CD 4/23, under Kan., Kansas City.

▲ **N. Y., Brighton**—TEMPLE—Faith Temple Corp., George Shea, minister, 20 Grant St., Rochester, plans by Francis Chiaverini, 170 Westminster St., Providence, 2 story brick, stone temple. **$1,000,000.**

N. Y., Brooklyn—APARTMENT—Kingsland Constr. Corp., 6202 Avenue U, Zone 10, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 2310 Ocean Parkway. **$600,000.**

▲ **N. Y., Brooklyn**—APARTMENTS—Samuel Match, c/o Dworman Co., 215 Montague St., Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, two 120-family apartments, 2717-27 and 2727-41 E. 28 St. **$2,400,000.**

N. Y., Brooklyn—APARTMENT—Sidbilt, Inc., 17 Neptune Ave., Zone 29, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 1150 Ocean Ave. **$600,000.**

▲ **N. Y., Flushing**—APARTMENT—George Rosen, c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, Kissena Blvd., east of Sanford Ave. **$1,000,000.**

▲ **N. Y., Forest Hills**—OFFICE—Lefrak Organization, 97-27 64 Rd., 15 story office south side of Queens Blvd. and 83 Ave. **$6,000,000.**

▲ **N. Y., Freeport**—HOSPITAL—Doctors General Hospital, Inc., c/o Dr. John N. Shell, 155 W. Merrick Rd., 115-bed hospital, north side of Merrick Rd. between Washington St. and Bayview Ave. **$1,000,000.**

O., Canton—OFFICE—Ohio Power Co., 301 Cleveland Ave. S.W., 6 story, 70x74 ft. office, annex to present headquarters. **$670,000.**

▲ **O., Waverly**—HOMES—Waverly Estates, Inc., 74 E. Gay St., Columbus, plans by Harry Roderick, 12 N. Third St., Columbus, 115 new frame homes. **$1,000,000.**

▲ **Okla., Bartlesville**—OFFICE, etc.—H. C. Price Welding Co., Bartlesville, plans by Frank Lloyd Wright, Spring Green, Wis., Price Tower, 18 story office, apartment and shops. **$1,000,000.**

Okla., Oklahoma City—EDUCATIONAL—First Presbyterian Church, 1001 N. Robinson St., plans by Parr & Aderhold, Hales Bldg., educational bldg., called Watchorn Hall, N.W. 25 and Olie Sts. **$500,000.** CD 3/7/50.

▲ **Tenn., Memphis**—RESIDENCES—Country Club Estates, c/o I. A. Wadlington, Jr. & J. O. E. Beck, III, archts., 1856 Autumn Ave., 1,750 residences, **$22,000,000.**

Tex., Midland—COMMUNITY CENTER—House Beautiful Homes, Inc., 3100 Travis St., plans by Charles Armstrong, 1st Life Bldg., Fort Worth, 1 story, 188,000 sq. ft. masonry community center. **$750,000.**

Tex., Paris—HOTEL—A. C. Nicholson, Kirby Bldg., plans by Fred Murphy, 1922 Avenue A, Fort Worth, 80-room hotel Bonham and 7 Sts. **$750,000.**

Va., Clifton Forge—HOSPITAL—Chesapeake & Ohio Ry. Co., L. T. Nuckols, ch. engr., 823 E. Main St., Richmond, Zone 10, hospital addn. **$500,000.**

Wash., Tacoma—HOSPITAL—Tacoma Orthopedics Assn., Tacoma, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, and Lea, Person & Richards, Tacoma Bldg., Mary Bridge Children's Hospital. **$900,000.** CD 3/31/50.

▲ **Ont., Ottawa**—HOUSING—Le Boulogis d'Ottawa, Ltd., A. Desjardins, 281 Dalhousie St., 350-low rent housing units in eastern part of city. **$2,800,000.**

Ont., Ottawa—HOUSES—Ottawa Lowren Housing Co., G. Cecil Morrison, pres., 94 Echo Dr., addnl. 100 low-rent houses Prince Albert, Queen Mary and King George Sts., in Overbrook, **$800,000.**

▲ **Ont., Toronto**—RESIDENCE—University of Toronto, Simcoe Hall, Toronto, plans by Mathers & Haldenby, 15 St. Mary St., 3 story two wings men's residence, central clock. **$1,500,000.** CD 1/20/47.

INDUSTRIAL BUILDINGS

▲ **Ala., Birmingham**—WAREHOUSE-OFFICE—Hayes Aircraft Corp., Municipal Airport, Birmingham, warehouse and office, **$1,000,000.**

Only
SAUERMAN
OFFERS ALL THESE
LONG RANGE
MACHINES

Sauerman Scraper stores and reclaims 150,000 tons of stone on space between dock and cement mill.

Power Scraper Excavator: An economical machine for hill or pit excavation, reclamation and handling of materials, wet or dry. A rapid conveyor for long range earthmoving.

Slackline Cableway Excavator: Unequalled for operations that require deep digging, especially under water and delivery to a high point. Reaches hundreds of feet into ponds, sludge basins or similar areas, while operator remains in a safe location.

Tautline Cableway: This is a long range aerial crane designed for jobs requiring lifting, conveying and placing loads of unwieldly material. It is used in the building of dams and in quarry and open pit mine operations.

Drag Scraper Stockpiler: As with the above machines, storing and reclaiming with a Sauerman scraper storage machine is a one-man-control job. It is used to handle a wide variety of bulk storage material, both indoors and out.

Write today for illustrated catalogs.

Sauerman Bros. Inc.

532 S. Clinton St. Chicago 7, Ill.

SYMONS

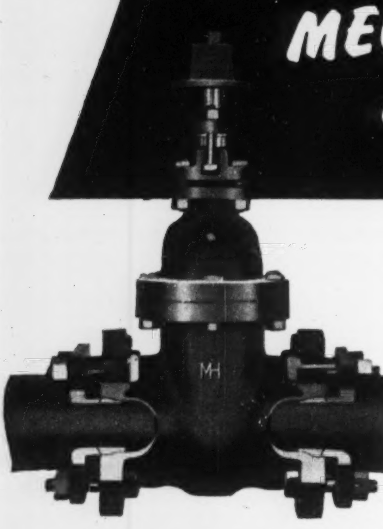
FORMS
for
- STRAIGHT WALLS
- BATTERED WALLS
- CURVED WALLS
- SLABS

Ask for Estimate

Symons

SYMONS CLAMP & MFG. CO. Dept. E-3
4265 DIVERSEY AVE. • CHICAGO 39, ILLINOIS

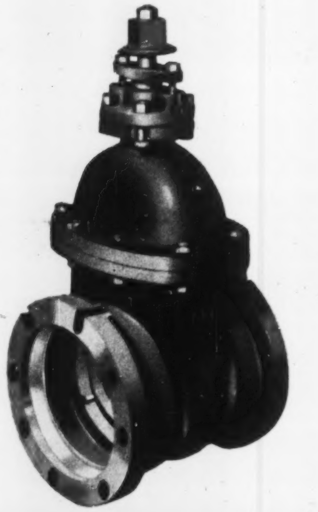
MECHANICAL JOINT



MH

VALVE

FLEXIBLE BOLTED CONNECTION



M & H Mechanical Joint ends on gate valves are identical with mechanical joint standards adopted by the Cast Iron Pipe Research Association. It uses the stuffing box principle, by which a thick gasket is compressed into a stuffing box by a bolted gland or follower ring. It is a flexible, bottle tight joint, easy to make, and economical. Mechanical joint making in the field does not require a skilled workman. Mechanical joint permits deflection in any direction, also longitudinal expansion and contraction.

For complete information, write or wire M & H Valve and Fittings Company, Anniston, Alabama.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 48-50 Church St., N. Y.

DUDGEON HYDRAULIC JACKS

SALES RENTALS • CAPACITY TO 600 TONS

FOR: PILE TESTING • UNDER-PINNING • BRIDGES • PIPE PUSHING • SOIL TESTING

Write to Dept. R

RICHARD DUDGEON INC.

789 BERGEN ST. • ST 9-4040 • BROOKLYN, N. Y.

Ga., Atlanta—PLANT—Scripto, Inc., 423 Houston St., plans by A. Thomas Bradbury, 60 5 St. N.E., Atlanta, plant addn. **$500,000.** CD 4/17.

▲ **Ga., Atlanta**—PLANT—Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa., plans by Robert & Co. Assocs., 96 Poplar St. N.W., electrical equipment mfg. plant, **$1,000,000.**

▲ **Ga., Savannah**—PLANT—The Verney Corp., Manchester, N. H., rayon plant, **$1,000,000.**

Ill., Chicago—SHOP, etc.—Chicago & Northwestern Ry. Co., B. R. Meyers, ch. engr., 400 W. Madison St., Zone 6, (a), 319x42 ft. diesel repair shop; (b) 1,330 ft. long servicing pit. **$825,000.**

Ill., Melrose Park—WAREHOUSE—Jewel Tea Co., Barrington, first unit warehouse, North Ave. and 19 St. **$800,000.**

▲ **Kan., Wichita**—WAREHOUSE—Kroger Co., 99 Wall St., New York, N. Y., 65,000 sq. ft. branch warehouse, **$1,000,000.**

Mich., Port Huron—PLANT, etc.—Mueller Brass Co., Port Huron, plans by Charles M. Valentine, 1320 Michigan Blvd., Marysville, brick, concrete plant and research laboratory, **$350,000.** CD 2/12.

▲ **N. J., Mahwah**—ASSEMBLY PLANT—Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich., car and truck assembly plant, near here. **$30,000,000.**

N. Y., New York—GARAGE—Henry Goelet, 292 Madison Ave., Zone 17, plans by Charles N. & Selig Whinston, Grand Central Terminal Bldg., Zone 17, parking garage and stores, 1145-55 Avenue of Americas. **$900,000.**

▲ **N. Y., Niagara Falls**—PLANT—Goodyear Tire & Rubber Co., 1144 E. Market St., Akron, O., chemical plant, incl. equip. **$4,000,000.**

▲ **O., Cleveland**—WAREHOUSE—White Motor Co., 842 E. 79 St., plans by J. Trevor Guy, 7715 Euclid Ave., warehouse at motor coach division, 1456 E. 185 St. **$1,000,000.**

▲ **Tex., Seadrift**—PLANT—Bakelite Co., Div. of Union Carbide & Carbon Corp., 30 E. 42 St., New York, N. Y. polyethylene plastic plant, its compounds and other chemicals from natural gas. **$5,500,000.**

▲ **Tex., Texas City**—PLASTIC PLANT—Bakelite Co., Div. of Union Carbide & Carbon Corp., 30 E. 42 St., New York, N. Y., polyethylene plastic plant, compounds and other chemicals from natural gas. **$6,500,000.**

▲ **Ont., Kingston**—PLANT—Imperial Chemical Industries of Canada, Ltd.; 1200 St. Alexander St., Montreal, Que., plant at Millhaven, **$20,000,000.** CD 4/7.

▲ **Ont., Oshawa**—ASSEMBLY PLANT—General Motors of Canada Ltd., Oshawa, new 42-acre auto assembly plant.

▲ **Ont., Picton**—TERMINAL WORKS—Bethlehem Mines Corps., Marmora, iron ore terminal works, docks, sheds, roads, storage pit and dredging, etc. **$1,000,000.**

UNCLASSIFIED

Ala., Andalusia—NATURAL GAS DISTRIBUTION SYSTEM—City, natural gas distr. sys. **$750,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, consult. engr.

Ala., Dothan—NATURAL GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. **$500,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S. Birmingham, consult. engr.

Ala., Eufaula—NATURAL GAS DISTRIBUTION SYSTEM—City, natural gas distr. sys. Over **$600,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, consult. engr.

Ala., Greenville—NATURAL GAS DISTRIBUTION LINE SYSTEM—City, natural gas distr. sys. **$500,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, consult. engr.

Ala., Ozark—NATURAL GAS DISTRIBUTION SYSTEM—City, natural gas distr. sys. Over **$750,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, consult. engr.

▲ **California**—COAXIAL CABLE—Pacific Telephone & Telegraph Co., 140 New Montgomery St., San Francisco, installing 320 mi. coaxial cable between Santa Clara and Los Angeles Counties, via Salinas, San Luis Obispo and Santa Barbara. **$10,160,000.**

Fla., De Funiak Springs—NATURAL GAS SYSTEM—City, City Hall, natural gas system, **$500,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, Ala., consult. engr. CD 4/29.

Fla., Fort Walton—GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. **$500,000.** J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, Ala., consult. engr. CD 4/29.

Fla., Miami—PRISONER STOCKADE—City, City Hall, prisoner stockade near Miami International Airport. **$500,000.**

Fla., Miami—TELEVISION STATION—L. B. Wilson, Inc., Hotel Sheraton Gibson, Cincinnati, O., television station, **$700,000.** A. D. Ring & Assoc., Munsey Bldg., Wash., 4, D. C., consult. engrs.

N. J., Trenton—STADIUM—City War Memorial Comn., Municipal Bldg., plans by Louis S. Kaplan, 25 N. Montgomery St., Trenton, municipal stadium, **$500,000** CD 2/27/50.

▲ **Texas and New Mexico**—GAS LINE—Permian Basin Pipe Line Co. (Northern Natural), Midland, Tex., 163 mi. 16- to 30-in. gas line from area of Midland, Tex., to area of Roswell, N. M. **$3,200,000.**

How to Plant a Road in a Swamp

Turning soggy, spongy swampland into a stable, lasting roadbed presents a formidable problem . . . until an Ellicott Dredge is put on the job. On a recent New Jersey road project, for example, this 12" Ellicott hydraulic dredge worked in swamps and marshes to remove a total of 250,000 cu. yds. of wet material. Then, it deposited 600,000 cu. yds. of approved fill for the roadbed.

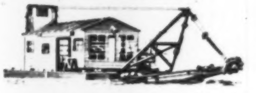
The job report reads: "The project, which required the dredge to be moved overland from one site to another several times, was completed in just eight months!" And to cap this performance, the same unit was moved overland, down the roadbed it had pumped in, to work on an adjacent road job through a cedar swamp!

* * *

If you have a dredging problem, large or small, Ellicott's 67 years of engineering experience can help you solve it. For more information, write for your copy of our Catalog No. 825, which shows over 100 views of Ellicott Dredges and dredging machinery. Address:

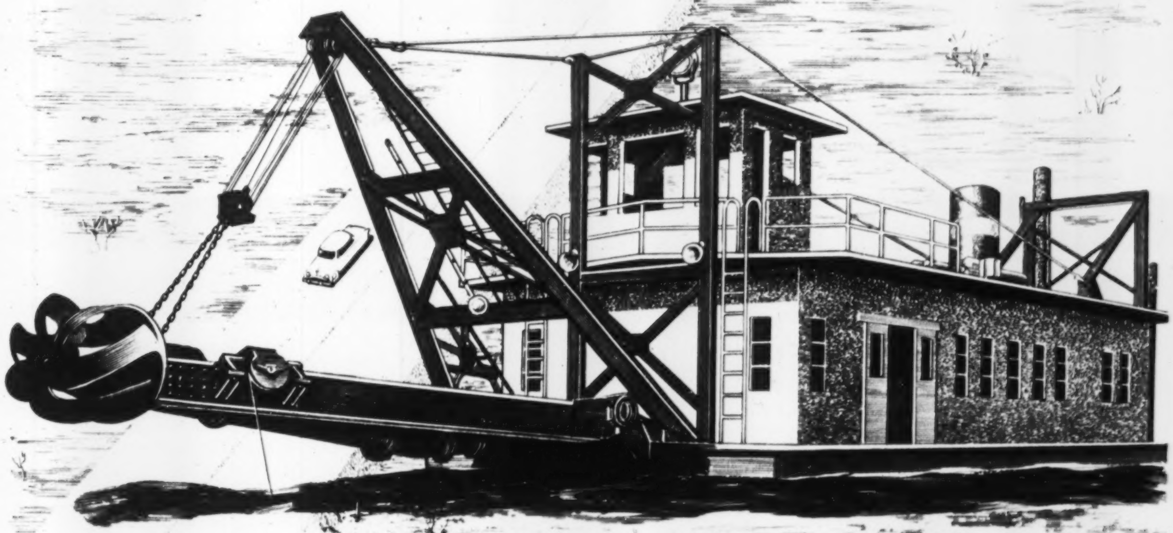
ELLICOTT MACHINE CORPORATION, 1603 Bush St., Baltimore 30, Md.

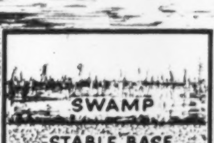
LITTLE DRAGON®—*New, Highly Versatile* PORTABLE DREDGES



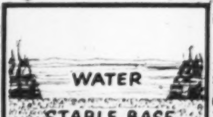
Low-cost, standard model, economical solution for small jobs. Deliver 150-250 cu. yds. of solids an hour, pump to 3,000 ft., dredge to depths of 20-26 ft. Ideal for work on canals, lakes, harbors, rivers; for providing fill for swamps, beaches, dams. Write for new Bulletin No. 826.

ELLICOTT DREDGES

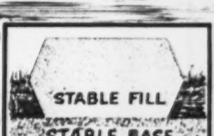




Cross-section of swamp to be cleared and filled for roadbed.



Same cross-section after wet material was dredged out.



Deposited roadbed of stable fill virtually planted in swamp.

Designed to Deliver Value

Whenever your job requires belting . . . conveyor, elevator or transmission . . . always specify Hewitt-Robins. Hewitt-Robins belting has proved its value through performance on the job. Each Hewitt-Robins belt, available in a complete range of types and sizes, is designed to deliver greater economy and durability for a particular application.

HEWITT-ROBINS CONVEYOR BELTING is job-engineered to handle bulk materials under any conditions.

HEWITT-ROBINS ELEVATOR BELTING carries extra tonnages with trouble-free service.

HEWITT-ROBINS TRANSMISSION BELTING gives more power, maximum flexibility with minimum stretch.

For the best answer to your particular belting needs always see your local Hewitt Rubber Distributor. (See "Rubber Products" in your classified phone book.)

HEWITT HR ROBINS

Executive Offices, Stamford, Connecticut

DOMESTIC DIVISIONS: Hewitt Rubber • Robins Conveyors • Robins Engineers • Restfoam
FOREIGN SUBSIDIARIES: Hewitt-Robins (Canada) Ltd., Montreal • Hewitt-Robins Internationale, Paris, France • Robins Conveyors (S. A.) Ltd., Johannesburg • **EXPORT DEPARTMENT:** New York City.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
June 4, 9 Massachusetts
STREETS AND ROADS
June 2, 9 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Newfield Homes Associates**, 15 Broad St., Stamford, Conn., Owner Builds, **$4,500,000**, 180 HOUSES, on 98 acre tract bounded by Newfield Ave., Vine and Peppermill Rds., STAMFORD, CONN. Harding, Driscoll & Bright, Westport, Conn., archts.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
June 8, 9 New Jersey
STREETS AND ROADS
June 2 Maryland — June 5, 11, 12 Pennsylvania
June 9 New Jersey — June 11 New York

BIDS ASKED—BUILDINGS

▲ **N. Y., Woodmere**—SCHOOL—B.A. About 7/1—Bd. Educ., Union Free School Dist. 15, Lawrence, Grade School No. 6. $2,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
A. E. Oblock, Unity, Pa., CA. **$2,116,600**, constr. 35,513 ft. crushed aggregate base with bit. surf. 18 ft. wide and 6 rein.-con. structures, T. R. 872, Cameron and Potter Counties. Bids May 1, Awarded May 15. CD 4/15. 5/28/53.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Empire Constr. Co., 31 S. Calvert St., Baltimore, Md. LB. **$1,125,065**. bridge to carry Annapolis By-Pass over Dorsey Creek 927 ft. dual span concrete substructure and superstructure, Contr. AA 263-19-515, near Annapolis, Anne Arundel Co. Bids May 12. CD 4/22.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **James J. Waters Corp.**, 415 Lexington Ave., New York, 17, N. Y., LB. **$1,109,000**, general constr.;
Davidson Electric Co., 1265 Atlantic Ave., Brooklyn, 16, N. Y., LB. **$302,784**, electrical work;
Forsythe Plumbing & Heating Corp., 234 W. 55 St., New York, 19, N. Y., LB. **$384,430**, heating and ventilating, for modernization and alterations to various buildings, Kings County HOSPITAL, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York, 7, N. Y. Bids May 13. CD 4/20.

▲ **Philip Lipstein & Assoc.**, 16 Court St., Brooklyn 2, N. Y. Owner Builds. **$4,000,000.** 19 story, penthouse APARTMENT, Park Ave. and 65 St., NEW YORK, N. Y. Sylvan Bien, 565 Fifth Ave., New York 17, N. Y., archt.

▲ **Simon Bros.**, 292 Madison Ave., New York 17, N. Y. Owner Builds. **$4,500,000.** 10 story OFFICE and WAREHOUSE, 345 W. 34 St., to be occupied by Robert Hall Clothes, NEW YORK, N. Y. Victor Mayper, 110 W. 40 St., New York 36, N. Y., archt.

▲ **Old-Oakes-At Syosset Homes**, c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$1,400,000.** 70 HOUSES, Hillside Lane south, SYOSSET, N. Y.

▲ **F. H. McGraw & Co.**, 780 Windsor St., Hartford, Conn., CA. **$1,600,000.** FACTORY, Saw Mill River Rd., YONKERS, N. Y. Habirshaw Cable & Wire Corp., 40 Wall St., New York 5, N. Y. Louis F. Thorn, 35 S. Broadway, Yonkers, N. Y. archt. CD 2/26.

▲ **Uris Brothers**, 575 Madison Ave., New York, N. Y. Owner Builds. **$15,000,000.** 20 story OFFICE, 15-16th Sts., Market St. to Penn Blvd. in "Penn Center", PHILA., PA. Emery Roth & Sons, 575 Madison Ave., New York, N. Y. archts. CD 2/4, under Pennsylvania R. R. as owner.

▲ **Victor Beauchamp**, 6837 Fourth St. N. W., Wash., D. C. CA **$2,178,000.** Cherry Hill Junior-Senior High SCHOOL, Hyattsville, UPPER MARLBORO, MD. Prince Georges Co. Bd. Educ., Upper Marlboro, Md. CD 5/8, under LB

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
June 12 Tennessee
STREETS AND ROADS
June 12 Tennessee

BIDS ASKED—BUILDINGS

▲ **Ala., Tuscaloosa**—SCHOOL—B.A. 6/9—City, City Hall, Negro Industrial High School, $1,500,000. Raymond Sizemore, 28 S. Hull St., Montgomery, archt. Extended date. CD 3/24.

▲ **Va., Princess Anne**—HIGH SCHOOL—B.A. 6/10—Princess Anne County School Bd., Princess Anne, 2 story, structural steel, masonry Princess Anne County High School, Thalia. $2,500,000. Plans deposit $150. Oliver & Smith, 409 Yarmouth St., Norfolk, archts. Fraioli-Blum-Yesselman, 1214 Granby St., Norfolk, engrs. CD 7/1.

SOON LETS CONTRACT—BUILDINGS

▲ **Ala., Calera**—PLANT—American Brake Shoe Co., 230 Park Ave., New York, N. Y., soon lets contract, plant, $1,000,000. CD 5/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **U. S. Eng.**, 308 Customhouse, Wilmington, N. C. cancelled bids to have been opened June 9, Ammunition Loading Piers, 3 admin. bldgs., 6 access trestles, etc. for U. S. Army Ammunition Loading Terminal, Sunny Point, ENG-31-075-53-21. WILMINGTON, N. C. **$23,000,000.** CD 5/21.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
T. L. James & Co., Inc., Ruston, La. CA **$1,991,046.** grading, concrete slab span bridges, c. conc. 11.92 mi. Sorrento-Gramercy Hy., State Rte. 1500, S.P. 7-06-07, and 7-05-07, Ascension and St. James Parishes. CD 4/22, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **D. I. Levine & A. S. Viola**, 2308 Airline Turnpike, Portsmouth, Va., Owner Builds. Approx. **$1,226,000.** 113 one story masonry RESIDENCES to be constructed in sections, PORTSMOUTH, VA.

▲ **Cecil's, Inc.**, Box 1895, Spartanburg, S. C., CA **$1,170,000.** Defense HOUSING, Proj. NC 3-D1 and NC-1-D2, CAMP LEJEUNE, N. C. Public Housing Admin., 900 Lombardy St., Richmond, Va. Bids Apr. 21. CD 4/28, under LB.

▲ **Etheridge & Vanneman**, 4411 Peachtree Rd. N. E., Atlanta, Ga., Owner Builds, **$1,500,000**, 150 RESIDENCES, ATLANTA, GA.

▲ **E. A. Barton**, 843 Barton Woods Rd. N. E., Atlanta, Ga., Owner Builds. **$1,000,000**, 50 RESIDENCES, ATLANTA, GA.

▲ **Bennett Realty Corp.**, 7 Peachtree St. N.E., Atlanta, Ga. Owner Builds. **$1,115,000**, 130 RESIDENCES, ATLANTA, GA.

▲ **Ben M. Smith, Sr.**, 1974 De Kalb Ave. N.E., Atlanta, Ga. Owner Builds. **$1,500,000**, 135 RESIDENCES, ATLANTA, GA.

▲ **Fickling & Walker**, 240 Second St., Macon, Ga., Owner Builds, **$2,500,000**, 300 RESIDENCES, WARNER ROBINS, GA.

▲ **Robert T. Turchin, Inc.**, 1835 Purdy Ave., Miami Beach, Fla., LB, **$1,824,000**, HOTEL, MIAMI BEACH, FLA. Di Lido Hotel, 1 Lincoln Rd., Miami Beach, Fla. CD 4/20.

▲ **E. J. Pollock Corp.**, Hialeah, Fla., Owner Builds. **$5,500,000**, 1,000 Negro RESIDENCES, PERRINE, FLA.

▲ **Farnsworth & Chambers Co.**, P.O. Box 332, New Orleans, La. CA. **$3,275,000.** East Side and West Side High SCHOOLS, GRETNA, LA. Jefferson Parish School Bd., Gretna, La. Bids May 14. CD 3/23.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
June 9 Wisconsin
STREETS AND ROADS
June 9 Wisconsin

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—OFFICE—B.A. 6/5—American Bar Assn., 1140 N. Dearborn St., 3 story, bsmnt. office, University of Chicago Campus, $2,000,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.

▲ **Ill., Mooseheart**—SCHOOL—B.A. 6/9—Loyal Order of Moose, Mooseheart, Junior and Senior High School. $1,000,000. L. Cosby Bernard, 7241 Forest Ave., Hammond, Ind., archt. CD 9/9/25, under Public Buildings.

▲ **O., Cincinnati**—HOUSING—B.A. 6/9—Cincinnati Metropolitan Housing Auth., Armory Ave., 296 two story bsmntless frame structures, Beekman St., Proj. B. $2,960,000. Plans deposit $40. Bernard Pepinsky, Union Trust Bldg., archt. Edward Larson, 2nd Natl. Bank Bldg., engr. Bids Feb. 26 rejected. CD 3/3, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—Ohio Turnpike Comn., 139 East Gay St., Columbus,
Fort Pitt Bridge Works, 212 Wood St., Pittsburgh 22, Pa., CA **$1,330,002**, Contr. M-1 and 3. 9,402,000 lb. structural steel and 483,000 lb. other types.

Warren-Cast for Large Diameter Piping

Whether your CAST IRON PIPING requirements are for water filtration or sewage disposal plants, pumping stations or power plants, WARREN FOUNDRY can supply your every need from 4" thru 106" in diameter.

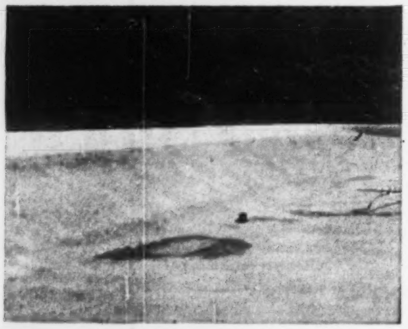
WARREN-CAST pipes and fittings are also available in high strength Meehanite Metal in tensile strengths up to 55,000 psi and wear-resistant and corrosive-resistant Meehanite Metal.

Modernized foundry facilities are equipped to produce very special castings up to 60,000# in weight.

Send for literature

WF
FOUNDED 1856
WARREN FOUNDRY & PIPE CORPORATION
55 Liberty Street, New York 5, N. Y.
Sales Offices: 55 Liberty St., New York, N. Y.
75 Federal St., Boston, Mass.
183 Sitgreave St., Phillipsburg, N. J.
Plants: Phillipsburg, N.J. Everett, Mass. Mt. Hope, N.J.

"A CENTURY OF PROGRESS AND QUALITY CASTINGS"



OLD RESERVOIR MADE BETTER THAN NEW

with "GUNITE" lining placed over the orginal lining.

The two pictures show the reservoir belonging to the Borough of Hellertown, Penna. The upper view shows the "GUNITE" work in progress, and the lower view the completed lining.

This old concrete lined reservoir was badly cracked and disintegrated with considerable leakage.

We chipped out the distintegrated concrete, sandblasted the entire area, and placed a minimum of two inch "GUNITE" reinforced with heavy mesh.

This reservoir is now water-tight and better than new.

Our 72-page bulletin A-2400 describes many reservoir jobs and scores of other uses of "GUNITE."

Write for your copy of bulletin A-2400

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.

MANUFACTURERS OF THE CEMENT GUN

MORETRENCH WELLPOINT SYSTEM

guarantees your freedom to

- ★ WORK unhampered by water
- ★ EXCAVATE by any method
- ★ PROGRESS fast
- ★ SAVE while doing it

"DIG IN THE DRY"

The Moretrench method and equipment are World famous and proved by years of experience. Send for the helpful Moretrench catalog today.

MORETRENCH CORPORATION
90 WEST STREET
NEW YORK 6, NEW YORK
Chicago, Ill. - Tampa, Fla. - Houston, Tex.

QUALITY INSTRUMENTS

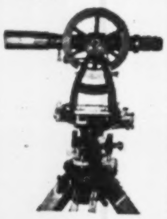
Finest Japanese Optics

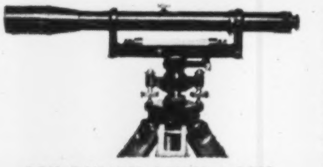
GUARANTEED ACCURACY
STANDARD AMERICAN SPECIFICATIONS
Each Instrument Has Coated Lenses

4" SURVEYOR'S TRANSIT—26X

Special Introductory Offer
Complete with collapsible tripod and carrying case

$375.00





18" DUMPY LEVEL—32X

Special Introductory Offer

$270.00 Complete with fixed leg tripod and carrying case.

Write For Descriptive Folders

Write for free folders on other surveying and engineering instruments

UMECO OPTICAL DIVISION
UNION MERCANTILE CO.
465 Calif. St. • San Francisco, Calif.

American Bridge Div., U. S. Steel Corp., 1302 Union Trust Bldg., Cincinnati 2, O., CA **$1,127,738**, Contr. M-2, 8,043,000 lb. structural steel and 255,000 lb. other types of metal for Ohio Turnpike. Bids May 8. CD 5/12, under LB.

▲**OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus, rejected bids Mar. 18, 5.3 mi. between South Range Rd. and Western Reserve Rd., C-2, Mahoning Co., LB **$5,270,991**. Combined C-2 and C-3, Mahoning Co., LB **$11,143,623**; 4.7 mi. between Western Reserve Rd. and point 3,400 ft. west of Racoon Rd. C-3, Mahoning Co. LB **$5,288,942**; 4 mi. between Lintz Townline Rd. and Warren Rd., C-7, Trumbull Co., LB **$4,542,611**; 2.9 mi. between County Line Rd. and Lintz Townline Rd., C-6, Trumbull Co., LB **$1,629,442**. CD 3/24 under LB.

▲ **Ohio Pipeline Constr. Co.**, Granville, O., CA **$1,276,290**, 26 mi. 20 in. pipe line from Crawford Station, Fairfield Co. to near Mt. Sterling, Madison Co.;

Shamrock Constr. Co., Lansing, Mich., CA. **$1,031,000**, 22 mi. 20 in. pipe line between Centerville Measuring Station, Montgomery Co. and Howell Junction, Greene Co., OHIO. Ohio Fuel Gas Co., 99 N. Front St., Columbus, O.

▲ **Wolf Constr. Co.**, 613 W. Market St., Logansport, Ind., CA **$1,045,663**, pumping plant equipment and tank foundations;

John Dehner, Inc., 1206 Clark St., Fort Wayne, Ind., CA, **$332,216**, water mains;

Pittsburgh-Des Moines Co., Neville Island, Pittsburgh, Pa., CA, **$241,170**, tanks, LOGANSPORT, IND. Bd. P. Wks., City Hall, Logansport, Ind. Grand total $1,619,049. Bids Apr. 8, awarded May 7. CD 2/18.

▲ **MICHIGAN**—State Hy. Dpt., C. M. Ziegler, comr., 222 Townsend St., Lansing, Zone 13.

Julius Porath & Son Co., 702 Transportation Bldg., Detroit, Mich. and **Sudgen & Sivier, Inc.**, 2323 E. 8 Mile Rd., Detroit, Mich. CA **$1,541,145**, est. $1,700,000. grading, two 35 ft. c. conc. 1.063 mi. on John C. Lodge Expressway Grand River to Lafayette, BUI 82-127 C77 (BUI 404 49), Wayne Co. CD 5/13, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **George A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA. **$4,707,992**, site preparation, incl. site excavation and grading, bearing, sheet piling for building and equip. foundations, concrete floor slabs, roads, yards, sidewalks, water, sewer lines, plant railroads, fence and guard rails for FACTORY for the Air Force, CLEVELAND, O. Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa. McGeorge-Hargett & Assoc., 7016 Euclid Ave., Cleveland, O., archts.-engrs. Bids May 11. CD 5/13, under LB.

▲ **A. J. Glaser Co., Inc.**, 401 S. Lincoln St., P. O. Box 649, Muncie, Ind., CA Approx. **$4,000,000**, mfg. PLANT, CONNERSVILLE, IND. Rex. Manufacturing Co., Div. Philco Corp., Connersville, Ind. Bids May 15. CD 5/6.

▲ **Friedman & Girlstein**, 120 E. Market St., Indianapolis, Ind. Owner Builds. **$1,800,000**. 65 HOMES in Pennwood Addn., INDIANAPOLIS, IND.

▲ **Burk Knight Co.**, 705 E. 61 St., Indianapolis, Ind. Owner Builds, **$360,000**, 30 HOMES in College Crest; **$1,500,000**, 100 HOMES, Spring Mill Road Addn., INDIANAPOLIS, IND.

Slezak Constr. Co., 5901 N. Leonard St., Chicago, Ill., CA, **$900,000**, FACTORY, WEST CHICAGO, IND. Moulded Products Corp. Div. of Admiral Corp., Creamery and Washington Sts., West Chicago, Ill. Awarded May 13. CD 4/20.

▲ **E. H. Marhoefer Co.**, 505 N. LaSalle St., Chicago, 10, Ill., LB, **$2,249,249**, suburban Cook County Tuberculosis SANITARIUM, CHICAGO, ILL. Cook County TB Sanitarium District, 7401 W. Madison St. Forest Park, Ill. Bids Apr. 21. CD 3/24.

▲ **Raymond L. Lutgert Constr. Co.**, 4619 W. 79 Pl., Chicago, Ill., Owner Builds **$3,000,000**. SHOPPING CENTER, Cicero and 79 Sts., 20-acres near CHICAGO, ILL. Sidney H. Morris, 134 N. LaSalle St., Chicago, 2, Ill., archt. Awarded May 13.

▲ **L. & R. Constr. Co.**, 6609 Latta Pl., St. Louis, Mo. LB, **$1,283,690**, Decatur-Macon HOSPITAL addn., DECATUR, ILL. Macon County Hospital Assn., Decatur, Ill. Beling Engr. Co., 307 16 St., Moline, Ill., engr. CD 5/13.

▲ **Maxon Constr. Co.**, 114 Liberty St., Barrington, Ill. Owner Builds. **$1,000,000**. 75 RESIDENCES, PALATINE, ILL. Awarded May 12.

▲ **Commonwealth Electric Co.**, 417 Broadway, St. Paul, Minn., CA, **$1,069,900**, two 3,000 kw turbine GENERATOR UNITS, for central heating and power plant, WAUWATOSA, WIS. Milwaukee County Institutions & Dpts., Wauwatosa, Wis. Bids Apr. 9, CD 4/20, under LB.

▲ **Housing Corp. of America**, subsidiary of Warner-Kanter Companies, 1951 Chaucer St., Cincinnati, O. Owner Builds. **$25,000,000**. Gratiot Redevelopment Proj., incl. 1,750 DWELLING UNITS, skyscraper and terraces, SHOPPING CENTER, Larned, Gratiot and Hastings Sts., and Grand Trunk R. R., DETROIT, MICH. CD 5/12.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 4 Kansas

STREETS AND ROADS

June 4 Kansas
June 5 North Dakota

BIDS ASKED—BUILDINGS

▲ **Kan., Fort Scott**—HOSPITAL—B.A. 6/16—Mercy Hospital, Fort Scott, hospital, $2,000,000. Schmidt-McVay & Peddi, 1832 E. 2 St., Wichita, archts. CD 8/27.

▲ **Tex., Port Arthur**—PLANT, etc.—Bids Asked—Gulf Oil Corp., Port Arthur, ethylene plant, $12,750,000; product warehousing storage, $200,000; water sys., $45,000. CD 5/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **E. H. Conrad**, 150 Simpson St., San Antonio, Tex., CA **$1,394,052**, high thrust jet engine test bldg., Tinker Air Force Base, Inv. No. (IFB)-34-601-53-344, OKLAHOMA CITY, OKLA., U. S. Govt., c/o Direc. of Procurement & Production, Tinker Air Force Base, Oklahoma City, Okla. Bids Apr. 21. CD 4/29, under LB.

▲† **Continental Utilities Constr. Co.**, 213 W. 13 St., Fort Worth, Tex., CA **$1,238,980**, constr. Facilities "E", Amarillo Air Force Base, Inv. No. 34-066-53-101, AMARILLO, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Apr. 9. CD 4/17, under LB.

▲† **J. W. Bateson Co.**, Irwin-Keasler Bldg., Dallas, Tex., CA. **$2,921,181**, hangar maintenance, Walker Air Force Base, Inv. No. Eng-29-005-53-113, ROSWELL, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids May 7. CD 5/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Dennehey Constr. Co.**, Braniff Bldg., Oklahoma City 2, Okla., CA, **$1,147,616**, est. $1,250,000. HOSPITAL, ARDMORE, OKLA. Southern Oklahoma Memorial Hospital, Ardmore, Okla. Awarded May 8. CD 5/6, under LB.

R. P. Farnsworth & Co., 440 N. Foster Dr., Baton Rouge, La., CA **$900,000.** 5 story OFFICE, AUSTIN, TEX. Lowich Investments, Inc., 1200 S. Ervay St., Dallas, Tex. CD 4/29.

J. B. Ragland, Ervay and Young Sts., Dallas, Tex., Own Forces. **$865,000**. MERCHANDISING MART, DALLAS, TEX. CD 5/15.

▲ **Goliad Corp.**, Goliad, Tex., cancelled bids propane gas PLANT unit, **$1,000,000**; iso-butane gas plant unit, **$875,000**; some general storage for gas products facilities, **$200,000**; general repair shop, **$85,000**, GOLIAD, TEX. Will re-advertise. CD 2/4.

▲ **Thad Dederick Constr. Co., 1532 Belden St., Houston, Tex.**, CA. **$1,050,000.** 10 story parking GARAGE, STORAGE, HOUSTON, TEX. South Texas National Bank, 213 Main St. Houston, Tex. Bids May 8. CD 4/27.

▲ **Manhattan Constr. Co.**, 2828 Pease St., Houston, Tex. CA. **$9,569,000**, 21 story BANK and OFFICE, HOUSTON, TEX. South Texas National Bank, 213 Main St., Houston, Tex. Bids May 8. CD 4/27.

▲ **Grove Controls, Inc.**, Longview, Tex., Purchases, Day Labor. **$1,750,000**. PLANT to mfg. equip. controls, valves, etc.; **$250,000**, WAREHOUSING;

John Petty, Rte. 3, Longview, Tex., CA. **$39,850**, addnl. area earthwork and foundation dirt removal on 400 acre site, southside T. & P. Ry. LONGVIEW, TEX. Grand total $2,039,850. CD 1/5.

▲ **Walsh & Burney Co.**, 928 N. Flores St., San Antonio, Tex., CA **$2,138,205**, 5 story 120 room HOSPITAL addn., SAN ANTONIO, TEX. Santa Rosa Hospital, Houston and Santa Rosa Sts., San Antonio, Tex. Bids Apr. 15. CD 4/21, under LB.

▲ **Mead & Mount Constr. Co.**, 240 Railway Exchange Bldg., Denver, Colo., LB **$944,000**, general contract 2 and 3 story, brick stone DORMITORY, BOULDER, COLO. University of Colorado, Campus, Boulder, Colo. Bids May 5. CD 4/14.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
June 9 Idaho

BIDS ASKED—BUILDINGS

▲ **Wash., Seattle**—APARTMENT—B.A. 7/15—Merry Investment Co., Lloyd Bldg., Zone 1, 15 story, steel, rein.-masonry apartment, $1,050,000. E. W. Morrison & Assocs., 719 2 Ave. Bldg., Zone 4, archts. CD 9/6/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Parker Schram Co.**, Builders Exchange Bldg., Portland, Ore., LB **$874,514**, McNary-Maupin 300-kv line No. 1, Inv. 6991, Umatilla, Morrow, Gilliam, Sherman and Wasco Counties, OREGON. Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids May 14. CD 5/1.

▲† **Winston Bros. Co.**, Northwest Bank Bldg., Minneapolis, Minn., **McLaughlin, Inc.**, Ford Bldg., Great Falls, Mont., **F & S Contg. Co.**, 1300 Chicago St., Butte, Mont., **Johnson, Drake & Piper Co., Inc.**, Baker Bldg., Minneapolis, Minn., **Donovan Constr. Co.**, 1725 Carroll Ave., St. Paul, Minn., **C. F. Lytle Co.**, 250 Insurance Exchange Bldg., Sioux City, Ia., **S. Birch & Sons Constr. Co.**, Ford Bldg., Great Falls, Mont., **Foley Bros., Inc.**, 900 New York Bldg., St. Paul, Minn., and **Fegles Constr. Co., Ltd.**, Wesley Temple Bldg., Minneapolis, Minn., LB **$29,820,997**, est. $36,677,521, Phase No. 1,

FOUNDATION CONSTRUCTION

CAISSONS SHAFTS

DRILLED AND UNDERREAMED

PIERS

SPECIAL DRILLING PROBLEMS

Wire or phone for a quotation on your next foundation job —

ANYWHERE IN THE WORLD

McKINNEY

DRILLING COMPANY

NACOGDOCHES, TEXAS

Phones: 1195 - 1053 • P. O. Box 190

ANOTHER WOOD FRAMING SYSTEM

fabricated

BY WEYERHAEUSER

This is the 110′ x 300′ warehouse and storage building erected by Hass Wholesale, Inc. at South Bend, Ind. For this structure Weyerhaeuser supplied fourteen 110′ Monocord Timber Trusses plus two gable-end nailers.

When you plan your next commercial or farm structure, be sure to consider the broad line of fabricated structural wood products offered by Weyerhaeuser. Behind these products are many years of extensive engineering in lumber, modern production facilities, and an accumulation of technical knowledge which assures a sound framing system at economical cost.

Weyerhaeuser products include many types of roof trusses in varying spans; trussed rafters; segmental arched rafters in 30 to 50 foot spans; buttressed arches for 50 to 100 foot spans; girders and other structural members. These products are delivered to your job site complete with hardware, ready for assembly and erection by local crews. Only properly stress-graded lumber is used in fabrication.

WRITE FOR the free Structural Wood Products Catalog which contains engineering and design data. Contact us or your local Weyerhaeuser 4-Square Lumber Dealer for specific information.

WEYERHAEUSER SALES COMPANY

Fabricating Department

TACOMA, WASH. • SAINT PAUL 1, MINNESOTA • NEWARK, N. J.

101
STEEL
BALL
BEARINGS

MATCHED TO MILLIONTHS assure the lasting accuracy and free movement of the

BRUNSON BALL-BEARING BASE*

USED ON ALL BRUNSON SURVEYING INSTRUMENTS

Permanently lubricated and factory sealed against dust, the Brunson Ball-Bearing Base allows a total eccentricity of not more than + or — ¼ second of angular error. To obtain this accuracy, it is necessary for us to engineer and produce in our own plant these Bearings and spindles—each stabilized to the accuracy of precision gauge blocks. Because these ball bearings are pre-loaded and operate under tension, they remove all grease from the point of contact. This assures greater accuracy than any other type of bearing which must allow for grease or oil film. *Write for details.* *Patented.

LASTING · BRUNSON · ACCURACY

BRUNSON INSTRUMENT COMPANY, INC.
3405 Walnut St. • Kansas City 6, Mo.

848 series

High-capacity line (80 to 200 tons per hour) for Highest Type Mixes, Cold Aggregate Control, Stabilization, and Road-Mix (Travel Plant).

845 series

Capacities of 50 to 70 tons per hour. An engineering achievement in compactness and portability.

840 series

Delivers 20 to 40 tons per hour; all types of mixes possible, including highest types.

804 mixall

For all the hot patch material you want, 5 tons per hour; cold mix, 10 tons per hour.

B G **BITUMINOUS PLANTS**

see your B-G distributor or write

Barber-Greene
AURORA, ILLINOIS, U. S. A.

power house, The Dalles Dam, Wasco Co., CIVENG-35-026-53-123, OREGON U. S Eng., Pittock Block, Portland, Ore. Bids May 19. CD 4/22.

▲† **United Concrete Pipe Corp.**, Box 425, Baldwin Park, Calif., CA, **$2,588,203**. Earthwork, structures etc. Unit 2, Delano-Earlimart Irrigation District, Central Valley Proj., Spec. DC 3889, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lindsay, Calif. Bids May 17. CD 3/24, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Chas L, Harney, Inc., 575 Berry St., San Francisco, Calif., LB, **$2,165,364**, grading, paving 7 bridges 2 pedestrian overcrossings 2 pedestrian undercrossings, 1.7 mi. Bayshore Freeway between Hester Ave. and Alemany Blvd., San Francisco Co.;

Clements & Co., 775 Jackson St., Hayward, Calif., LB, **$135,915**, surf. 4 mi. between Adin and Rush Creek Modoc Co.;

Mercer Fraser Co. & Mercer Fraser Gas Co., 2 and Commercial Sts., Eureka, Calif., LB, **$139,914** surf. 9.9 mi. near Alton and Bridgeville, Humboldt Co.;

Wonderly Constr. Co., 2694 Lime Ave., Long Beach, Calif., LB, **$76,038**, grading, surf. 2.1 mi. between Silver Lake and Rush Creek Weir, Mono Co.;

M. W. Brown & R. E. Hertel, Box 222, Redding, Calif. LB, **$391,628**, grading, surf. 2.3 mi. between Weaverville and Douglas City, Trinity Co. Bids May 13. CD 4/23.

▲ **Zoss Constr. Co.**, P.O. Box 1167, Hollywood, Calif., LB. **$2,290,765**, maintenance hangar, paving, utilities Travis Air FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids May 7. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Strand & Sons**, 3941 University Way, Seattle, 5, Wash., LB. **$1,273,855**, 5 story, 44x184 ft. and 4 story, 50x82 ft., rein.-con. HOSPITAL, SEATTLE, WASH. Ballard General Hospital, 2208 Market St., Seattle, Wash. Bids May 14. CD 4/23.

▲ **Ross B. Hammond Co.**, 1241 N. Williams St., Portland, Ore., LB **$1,874,699**, 7 story, concrete retirement Home, four 6-story wings, MILWAUKIE, ORE. Willamette View Manor Assn., Milwaukie, Ore. Bids Apr. 28. CD 4/14.

▲ **Phoenix Constr. Co.**, 642 S. Western Ave., Los Angeles, Calif., CA. **$1,208,000**, 151 stucco DWELLINGS, Tarrant, Hoskins and Visalia Sts., COMPTON, CALIF. Western Projects Corp., 3842 Wilshire Blvd., Los Angeles, Calif.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bennett & White Constr. Co. Ltd.**, 660 Howe St., Vancouver, B. C., CA, **$1,700,000**, 101 DWELLINGS for employees in 10 cities and towns along 718-mile pipeline route in BRITISH COLUMBIA and ALBERTA, Transmountain Oil Pipe Line Co., 425 Howe St., Vancouver, B. C. Awarded May 14.

▲ **General Construction Co. Ltd.**, Granville Island, Vancouver, B. C., CA, **$2,002,400**, rein.-con. concrete block MAGAZINE BLDGS., services structures, associated services, Rocky Point, ESQUAIMALT, B. C. Defence Constr. (1951) Ltd. 360 Homer St., Vancouver, B. C. Bids Apr. 14, awarded May 13. CD 3/16.

D. Robinson Constr. Ltd., 90 Cavan St., Nanaimo, B. C., LB, **$948,478**, rein.-con. frame, SCHOOL for Boys Brannan Lake, NANAIMO, B. C. British Columbia Govt., Parliament Bldgs., Victoria, B. C. Bids May 14. CD 4/29.

▲ **Model Homes Ltd.**, 7 Smithfield St., West Kildonan, Man., Owner Builds, **$2,500,000**, 400 HOMES, various streets, TRANSCONA, MAN.

▲ **Kenney Constr. Co. Ltd.**, 396 Main St., Yarmouth, N. S., CA, **$2,225,000**, MENTAL HOSPITAL in northern Cape Breton, SYDNEY RIVER, N. S. Cape Breton County Hospital Bd., Court House, Sydney, N. S. CD 2/3.

▲ **The Austin Co. Ltd.**, Royal Bank Bldg., Toronto, Ont., CA **$1,000,000**, design and construct, 1 story 50,000 sq. ft., steel frame, masonry FACTORY, GODERICH, ONT. W. A. Sheaffer Pen Co. of Canada Ltd., Malton, Ont. Awarded May 13.

▲ **The H. K. Ferguson Co.**, 1783 East 11 St., Cleveland, O. U. S. A. CA **$20,000,000**. design and construct PLANT, at Millhaven, KINGSTON, ONT. Imperial Chemical Industries of Canada Ltd., 1200 St. Alexander St., Montreal, Que. CD 5/15.

▲ **Louis Donolo, Inc.**, 8320 St. Lawrence Blvd., Montreal, Que. CA, **$1,300,000**, 1 story 172x300 ft. and 50x75 ft. steel, brick PLANT addn. on highway near C. P. R. tracks STE. THERESE, QUE. Blackwood Morton & Sons (Canada) Ltd., St. Therese, Que. T. W. Burge, 7357 Sherbrooke St. W., Montreal, Que., archt.

ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Palmer**—SCHOOL—B.A. 6/17—Alaska P. Wks., Dpt. Interior, Juneau, 38,000 sq. ft. school. $1,000,000. Extended date. Johnson & Botesch, 1st. Natl. Bank Bldg., Everett, Wash., archts. CD 5/20.

(Proposal Advertisements see pp. 88 to 91)

WALTON'S FAMOUS
EverForm
PLASTIC SURFACED CONCRETE FORM PANELS

provide maximum re-use value in all types of concrete form work.

- The sleek, durable, diamond-hard surfaces assure super-smooth concrete, longer "on the job" service and the ultimate in re-uses.
- The inner core of *EverForm* panels is waterproof (EXT-DFPA) Douglas Fir Plywood.

Produced by one of the nation's pioneer Fir Plywood manufacturers.

Samples on request

WALTON
PLYWOOD COMPANY, INC.

General Sales Office
644 East 38th Street—Suite #205
Indianapolis 5, Indiana

Mill and General Offices
Everett, Washington

MacArthur Means:

- **Experience**
  43 years of it, installing concrete pile foundations
- **In**
  every soil condition
- **For**
  every type of structure, all over the U.S.

•

You'll find the MacArthur story interesting. Write for it.

MacArthur
CONCRETE PILE CORP.
18 East 48th Street
New York 17, N. Y.
NEW ORLEANS CINCINNATI

ENR survey shows rate boost has done little for builders

As many observers predicted (ENR May 7, p. 21), the boost in interest rates on VA and FHA mortgages has not caused a lenders' stampede. Even at 4½%, government-guaranteed mortgages bring in a lower return than many conventional mortgage loans. They also have to compete with rising rates on government, municipal, and corporate bonds. During the weeks while Washington was debating the pros and cons of the rate boost, interest rates hardened to such an extent that when the boost finally came, it was a fizzle as far as any immediate effect on starts was concerned.

Those are the major conclusions of a survey Engineering News-Record made in a number of key U. S. cities last week. Builders in most places said that so far they had noticed no change, or a very slight easing, of the market for government-guaranteed mortgages. Many of them pointed out that lenders could get 5% or more on conventional mortgages, and therefore weren't anxious to lend at 4½%.

All this indicates that the Veterans Administration may find that its new rules on discounting of mortgages (page 86) may send some lenders elsewhere, as long as they can get better yields on other investments.

However, assuming that interest rates on other forms of investment don't continue to go higher, in the long run this rate boost certainly will make more mortgage money available to finance home building.

As of this week, it looked as if interest rates were leveling off. The Federal Reserve Board has moved to make money a little easier by buying government securities in the open market, for the first time in quite a while. FRB spokesmen have also intimated that it won't allow money to get any tighter, at least for now.

Here's a rundown of the report from different cities from west to east:

- **San Francisco**—Builders haven't noticed any loosening up on VA and FHA mortgages, and they emphasize that previously there had been very little building under FHA.
- **Seattle**—Here the situation is a bit different. One builder reports that finally he has been able to obtain financing for 40 to 50 duplex housing units. Others report no change in the market. And one builder says that lenders are requiring a 5% discount on the new government-guaranteed mortgages, in spite of the higher rate.
- **St. Louis**—The market is slow here, perhaps because of recent bad weather. Some builders report a slight easing on government-guaranteed mortgages.
- **Chicago**—There hasn't been much change in the mortgage market here. Lenders still require a slight discount, ranging from 1% to 2%, on VA mortgages. One loan company reports that it has just increased the rate on conventional mortgages from 5% to 5½%.
- **Detroit**—The local building situation here is clouded by strikes, so that it is hard to tell just how the rate boost is going to affect home financing.
- **Kansas City**—Here FHA mortgages are still selling at a 1% discount. Builders say there is no market here in VA mortgages; too much red tape is involved. Lenders are being very selective about to whom they lend and are asking 20% down. Insurance companies have been asking 3% discounts when they buy VAs plus the 1% closing fee. However, an officer of a local savings and loan association says that VA mortgages are now easier to get.
- **Atlanta**—There are a lot more applications for VA mortgages here, and the market is slightly easier. Lenders require a discount of 1½% of the face value of mortgages on existing construction; and 2½% on new construction.
- **Philadelphia**—Builders say that the rate boost means that during the next six months about 2,500 more homes will be started in the Philadelphia area during the next six months than would have been the case otherwise.

Mackinac Bridge financing ball passed to Wall Street

Now that the Michigan legislature has provided for the operating and maintenance costs of the proposed bridge across the Straits of Mackinac, it looks as if Wall Street underwriters will come up with a bid on the $96-million bond issue within two or three weeks.

That's the opinion of B. J. Van Ingen & Co., Inc., investment banking house which is scheduled to head a nation-wide syndicate to bid on the bond issue. A few weeks ago, underwriters turned the proposal down (ENR Apr. 16, p. 21) because of the fact that the ferry line now operating across the straits has been losing money, and because they wanted the state to provide assistance to the bridge.

The bill, which is expected to be signed by Gov. G. Mennen Williams shortly, will provide up to $417,000 annually to meet operating and maintenance costs.

Van Ingen also points out that ferry revenues for the first four months of this year were 20% above the same 1952 period, and in May have been running 30% higher than May, 1952.

Guaranteed material offered for first time

For what seems to be the first time in the history of the construction industry, a basic building material of impartially certified quality is coming on the market.

In June the Perlite Institute, association of perlite producers, will start providing the construction industry with a guaranteed plaster aggregate. The program sets up a "certification seal" to identify plaster aggregate that is guaranteed by the manufacturer to conform to ASTM Specification C 35-52 T.

Pittsburgh Testing Laboratory will check perlite at producers' plants frequently but unexpectedly.

"Contractors can now specify any brand of perlite that displays the new seal and have positive assurance that the material they use will meet the ASTM specification in all respects," says Lewis Lloyd, institute president. More than 30 producers in all parts of the U. S. have joined the plan.

However, manufacturers will continue to stress their own sales points. The ASTM specification is broad enough so that they can make the gradation of aggregate preferred by plasterers in local areas, and still conform. In this way, says the institute, "Architects and engineers can specify a locally produced plaster aggregate of national certified quality, backed by a guarantee." Those who do not wish to specify a single brand of aggregate need merely specify that "aggregate shall be supplied in containers displaying the Perlite Institute Seal."

The certification idea is not unknown in the construction industry. For instance, the Aluminum Window Manufacturers Assn. has a somewhat similar guarantee plan.

VA restricts discounts on new 4½% mortgages

Now that the interest rate on VA mortgages has been boosted from 4% to 4½%, the Veterans Administration says it will "sharply restrict" discounting of VA mortgages sold by builders to lenders.

Under this arrangement, a builder who had made a 4% VA mortgage loan to a buyer in order to sell a house might resell the mortgage to a permanent lender at a discount sufficiently large to make the actual interest yield from the mortgage comparable with that of conventional mortgages. On account of the rising trend of interest rates in the last couple of years, builders often had to resort to this practice in order to get VA mortgages for buyers.

In one way or another, the builder usually passed this charge on to the buyer, for example, either through a higher price for the house, or by cheaper construction, or by requiring a straight bonus.

Now, however, VA believes that the 4½% rate makes this unnecessary. From now on, VA regional offices will require all builders to certify that they "have not or will not pay or absorb, directly or indirectly, any charges or fees in excess or in addition to those authorized by VA."

On construction loans to builders, VA does not allow lenders to charge more than 5% annually on construction money actually paid out. And as an inspection and supervision charge, lenders may not ask more than 2½% of the actual construction loan.

Proposed work piles up in record ENR backlog

Although projects in Engineering News-Record's backlog are moving out into the contract stage at a record rate, ENR's backlog continues to grow. As of May 1, it's at a record high of $71.2 billion.

The tremendous dollar volume of proposed projects reported is more than offsetting volume of projects advancing into contracts, plus the volume of "dead" projects removed from the backlog.

During the first four months of this year, a total of $6.5 billion of proposed heavy construction projects has been reported to ENR—58% more than the volume during the similar period last year. During the first four months, $2.7 billion worth of proposed projects have moved into contract status—a record volume. In the same period, projects totaling $1.3 billion have been definitely abandoned and thus removed from the backlog. So the net gain in the backlog, in round numbers, is $2.5 billion.

The $2.7 billion of projects that have moved into contracts are worth studying. This is 30% more than the volume moving into contracts during the same period last year. Part of the reason for the gain is that back in 1952 much proposed work was held up by controls. But it's interesting to see that a substantial amount of the work now moving into contract was proposed after controls were eased. This indicates that the large volume of work now coming out of the backlog is not just a cleanup of jobs which previously had been held up, but is also partly caused by a continuing strong market for new construction.

The figures on abandoned projects are also worth looking at. There's quite a gain in dollar volume—24%—over the same period in 1952. But the

CONSTRUCTION TRENDS

Stop any builder or banker on the street and ask him what he thinks is the most perplexing question in the field of residential construction—he's certain to say it's the future demand for homes.

It's not so much that the market is slack now. But there are warning signals. New homes did move more slowly last year, and prices of older homes did sag a bit. Also, everybody knows that low-income families are becoming more important in the housing market. These families don't have much equity in their homes. And if their income should be reduced—as a result of layoffs or less overtime—they would be in trouble. So, it all adds up to the $64 question—Is the housing market about to turn down?

Many people figure that housing demand depends in large part on the rate of new family formation. Right after the war, new families created by marriages were just below the 1,000,000-a-year mark. Wartime marriage deferrals, prosperity and the large numbers of people aged 20-34 accounted for this high rate.

But the future outlook is not nearly so bright. It's primarily because the small crop of babies of the depression years has now reached marriageable age. Best guess right now is that the net increase in married couples will average about 400,000 a year through 1955. And there's not much of a backlog of married couples sharing living quarters with family or friends—consequently not much undoubling is expected in the years immediately ahead.

The addition to the number of households as a result of new family groups not headed by a married couple (divorce or the death of a husband or wife is responsible for creating most of these groups) as well as the increase in the number of unmarried persons maintaining separate residences will average about 265,000 a year for the next few years. When all the totals are in, the number of new households anticipated during the next few years is less than 700,000 a year compared with average yearly figures of 1,100,000 from 1949-1952 and 1,500,000 from the period 1947-1949.

But all this doesn't mean that the housing boom is about to collapse. There's no hard and fast rule that new families and new construction go hand in hand. Look at the past figures and you'll see that oftentimes family formation leads, at other times it lags behind housing starts.

There are several factors which support a sanguine view of the housing outlook. A 1950 report by the Bureau of the Census reports that nearly 2,500,000 urban dwelling units were "dilapidated." An additional 7,000,000 units lacked either running water or a bathroom. In addition, the high birth rate of recent years—3,700,000 per year against 2,900,000 during the boom 1920s—means that there are more large families. Consequently, there is an unprecedented demand for more spacious quarters. The three-bedroom house is becoming commonplace.

In other words, housing starts could stay at their present rate of 1,000,000 a year for some time to come, in spite of the decline in new family formation. Whether this will happen depends on whether the present high level of business activity keeps going, whether the rate of savings continues at or near its present high level, and whether government policy continues to encourage the mortgage market.

ratio of abandoned projects to new proposed projects is only 19% during the first four months, compared with 25% during the same period last year. And it's still only 1.8% of the total backlog as of the start of this year.

As ENR's backlog matures—it is 10 years old now—it gets larger. And as it gets larger, a larger dollar volume of abandoned work can be expected. But the percentage of such projects to the total backlog should stay pretty constant. This is what has happened. During the first four months of the years 1951, 1952, and 1953, the ratio of "dead" projects to the total backlog at the start of the year has ranged from 1.7% to 1.9%.

Delaware bridge costly but money is around

Even in a tight money market, it's not hard to borrow $100 million for construction—if you're willing to pay the price. The Delaware River Port Authority will have to pay about 3.44% interest on the $100-million revenue bond issue it sold this week to build a second bridge across the Delaware between Philadelphia and New Jersey.

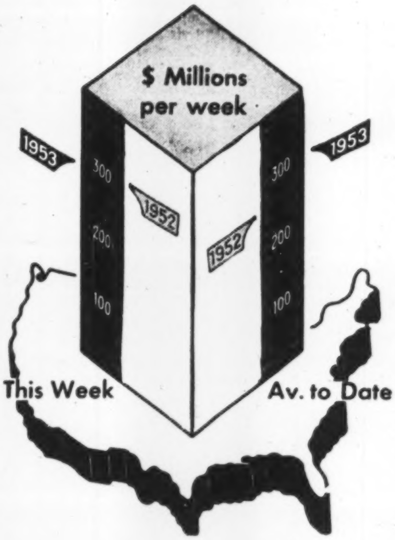
That's in spite of the fact that: (1) interest on these bonds is exempt from income tax, and (2) financial analysts say that current net operating revenue from the authority's existing bridge alone is enough to pay debt service on the new issue, even if nobody ever uses the new toll bridge.

- **Fair bid**—In explaining the high interest rate, Edward C. McAuliffe, chairman of the authority, said last week that the bid for the issue offered by a nation-wide group of 303 investment banking houses was a fair one. He said DRPA had "exhausted every avenue" for getting the best possible rate.

Actually, DRPA won't use all of the money for construction. Building the new bridge and its approaches will cost about $90 million, including $10 million for engineering, administration, and property and right-of-way costs. It's expected that the job will be finished by 1957. The other $10 million borrowed last week will be used to refund existing debt.

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 22 wks 1953	Cumulative 22 wks 1952	% chge
Federal	$40.2	$642.1	$868.4	−26
State and Municipal ..	97.3	2,102.3	1,763.7	+19
Total pub...	137.5	2,744.4	2,632.1	+4
Total priv...	153.8	3,909.2	3,010.0	+30
U. S. Total	**$291.3**	**$6,653.6**	**$5,642.1**	**+18**

Contracts by type of work

	This Week	1953	1952	% chge
Waterworks .	$5.5	$104.8	$100.5	+4
Sewerage ...	16.6	172.2	98.4	+75
Bridges	8.2	319.1	153.0	+109
Highways ..	36.2	682.0	594.0	+15
Earthwork, Waterways.	7.5	145.1	239.9	−40
Buildings:				
Public, excl. hsg.	49.5	713.5	732.9	−2
Housg., pub.	3.0	247.4	416.1	−41
Housg., priv.	69.6	1,743.9	1,250.4	+39
Commercial	49.6	477.2	260.4	+83
Industrial .	24.3	1,355.5	1,256.2	+8
Unclassified.	21.3	692.9	540.3	+28
Total	**$291.3**	**$6,653.6**	**$5,642.1**	**+18**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes

		Base Years = 100 1953	1913	1926	1949
Constr. cost	**May**	**589.21**	**283.23**	**123.52**
	Apr.	589.71	283.47	123.62
Bldg. cost	**May**	**426.63**	**230.54**	**121.23**
	Apr.	426.65	230.62	121.27
Volume	**Apr.**	**523***	**213***	**151***

***Revised**

Mc KIERNAN-TERRY
RUGGEDLY-BUILT
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 11 double-acting hammers and 5 single-acting hammers. Write for free Bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY
CORPORATION
MANUFACTURING ENGINEERS
13 PARK ROW, NEW YORK 38, N. Y.

ELEVATED TANKS

- For almost a century, COLE elevated tanks have provided a dependable water supply for industries and communities. COLE Quality is assured by careful, experienced designing, and watchful supervision from blueprint to finished tanks.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons . . . stating capacity, height to bottom, and location. Write for latest COLE catalog—"Tank Talk."

R. D.
COLE MFG. CO.
NEWNAN, GA., Established 1854
TANKS • TOWERS • VESSELS
CYLINDERS

OFFICIAL PROPOSALS

- RATE: The rate for Official Proposal advertising is $1.50 per line (or fraction set solid; and where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.
- CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.
- SEND COPY TO: Official Proposal Div.
  Engineering News Record
  330 W. 42nd Street
  New York 36, N. Y.

Bids: June 9, 1953

Route S-49 (1927)—Route 47 (1953), Sections 7 & 6A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route S-49 (1927)—Route 47 (1953), Sections 7 and 6A, from Sixth Street, Rio Grande, to Grassy Sound Bridge Approach; Divided Highway-Paving, in Middle and Lower Townships, Cape May County. Length 2.279 miles. The principal items of construction are

Estimated:

126,174	cu. yds. Roadway Excavation-Earth
21,175	sq. yds. 2" Penetration Gravel Shoulders
76,769	sq. yds. 6" Gravel Base
53,062	sq. yds. 5" Macadam Intermediate Course
51,445	sq. yds. 3" Bituminous Concrete Surface
948	lin. ft. Rein. Conc. Culvert Pipe
2,202	lin. ft. Corrugated Metal Culvert Pipe
54	Inlets
4,463	lin. ft. White Concrete Vertical Curb
4,654	lin. ft. White Concrete Sloping Curb

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 9, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 9, 1953

Rt. 39 (1927)—Rt. U. S. 206 (1953), Sec. 9-A Cedar Branch Bridge and Approaches

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route 39 (1927)—Route U.S. 206 (1953), Cedar Branch Bridge and Approaches, in the Town of Hammonton, Atlantic County. Length 0.027 miles. The principal items of construction are

Roadway Items

Estimated:

257	cu. yds. Roadway Excavation
780	cu. yds. Channel Excavation
953	sq. yds. Gravel Shoulder
154	sq. yds. 13" Rein. Conc. Pavement Surface
111	sq. yds. 18" Rein. Bridge Approach Slabs
	Bridge Items
218	cu. yds. Concrete in Structures
8,750	lbs. Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 9, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 11, 1953

Required Grading & Drainage

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 18

The work to be done under this contract consists in performing the required grading and drainage for approximately 4.11 miles of the West Virginia Turnpike including the relocation of approximately 0.85 miles of side roads plus the construction of the substructures for bridges known as Structures Nos. 2, 3, 4 and 4A. This work is located between a point near Princeton, at mile 0.0, and the vicinity of Gardner about mile 4.8, Mercer County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Clearing and Grubbing	25 acres
Excavation (all types) Including Borrow	950,000 c. y.
Concrete	1,150 c. y.
Reinforcing Steel	78,500 lbs.
Culvert Pipes and Underdrains	6,100 lin. ft.
Steel Piles	900 lin. ft.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A. M., Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A. M. Eastern Standard Time, on June 11, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton
Chairman

May 14, 1953

Bids: June 11, 1953

Lateral Sewer Extension

SOUTH FALLSBURGH SEWER DISTRICT
TOWN OF FALLSBURGH, N. Y.

1. Sealed proposals for the installation of lateral sewers and accessories in the South Fallsburgh Sewer District, Town of Fallsburgh, N. Y. will be received by the Town Board at the Town Clerk's Office, South Fallsburgh, until 3:00 o'clock, P. M., June 11, 1953, and there publicly opened and read immediately thereafter.

2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of approximately 8200 feet of 8-inch and 10-inch diameter clay pipe sewers, including manholes and house connections.

3. Plans, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York 7, N. Y. and there obtained upon a Deposit of FIFTEEN ($15.00) DOLLARS PER SET. Full refund of Deposit will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date of bids; refund for return of all other sets, in good condition, within the same period, will be Fifty Percent (50%) of the Deposit.

4. All proposals must be on the form contained in the Specifications furnished by the Town.

5. All bids must be accompanied by a Certified Check or Acceptable Bidder's Bond in the amount of Ten Percent (10%) of the amount of the Bid, made payable to the Town of Fallsburgh. Said checks will be returned to all, except the three (3) lowest bidders, not later than ten (10) days after opening of bids.

6. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.

7. No bidder may withdraw his bid within Thirty (30) Days after closing date for receipt of bids.

8. The Town Board reserves the right to reject any or all bids and to waive any informality in the bid.

TOWN OF FALLSBURGH
By: MORTIMER MICHAELS
TOWN SUPERVISOR

DATED: May 18, 1953.

Tenders are being invited by the New Zealand Government for the supply of one Vertical Left Hand Single Cut Log Bandmill. Tenders close with the Stores Officer, New Zealand Forest Service, P.O. Box 1028, Wellington, New Zealand, on June 23, 1953. Quotation forms, specifications and drawings may be obtained on application to the New Zealand Government Trade Commissioner, 1346 Connecticut Avenue, N. W., Washington 6, D. C.

OFFICIAL PROPOSALS

Bids: July 8, 1953

The Construction of The Henry and Edsel Ford Auditorium for Memorial Hall Commission

CONTRACT MH 23-A2

Sealed proposals for the construction of The Henry & Edsel Ford Auditorium, located at Woodward Avenue and Woodbridge Street, Detroit, Michigan, addressed to the Memorial Hall Commission of the City of Detroit, and endorsed "Proposal for Contract MH 23-A2," will be received at the office of the City Engineer, 30th Floor, Guardian Building, 500 Griswold Street, Detroit, Michigan, until 2:00 P. M., City of Detroit Time, Wednesday, July 8, 1953, at which time they will be publicly opened and read aloud. Any proposals received after the above mentioned time will be returned to the Bidder unopened.

The work included consists of the construction of the superstructure of a Monumental Auditorium Building approximately 250 feet by 192 feet. The building is of structural steel frame supported on concrete foundations. Floors are reinforced concrete. Walls are of masonry faced on the exterior with marble and granite. Air conditioning including both heat and refrigeration, plumbing and electrical systems are included in the work.

(a) The Concrete Foundations have been installed under a separate contract.

(b) At a later date the City will take separate bids on Projection Equipment, Theatre Chairs, Carpets, Drapes and Stage Equipment including Asbestos Curtain.

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, and Contract Drawings and Specifications, may be examined and obtained at the office of Crane, Kiehler & Kellogg and O'Dell, Hewlett & Luckenbach, Architects, 112 Madison Avenue, Detroit, Michigan, during business hours on and after May 25, 1953. Copies of the complete Contract Documents may be obtained on deposit of $100.00 with the Architects. Complete sets only will be issued.

The check is to be made payable to the Treasurer, City of Detroit.

The full amount of the deposit for contract documents will be refunded on return of the drawings and specifications free from marks and other mutilations, provided the drawings and specifications are returned within ten (10) days after the receipt of proposals or if used in submitting a bona fide proposal. Otherwise, the deposit of $100.00 will be forfeited to the City of Detroit.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than five percent of the total bid price as security for the acceptance of the contract.

After the scheduled closing time for receipt of bids, no proposal may be withdrawn for at least 30 days.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
FRANK G. SCHEMANSKE
President, Memorial
Hall Commission

Bids: June 23, 1953

Purchase of Steel Swing Span

Sealed bids will be received by the Mississippi State Highway Commission, Jackson, Mississippi, until 10:00 o'clock A. M., Tuesday, June 23, 1953, for the purchase by cash (lump sum bid) of the 202 foot steel swing Span, including machinery, being a part of the existing bridge across the Bay of St. Louis on U. S. Highway No. 90 between Bay St. Louis and Henderson Point in Hancock and Harrison Counties, which is to be removed and stored by others.

Certified check or bid bond for five per cent (5%) of bid, payable to STATE OF MISSISSIPPI, must accompany each proposal.

Further information may be obtained from the Office Engineer.

T. C. ROBBINS, DIRECTOR
MISSISSIPPI STATE HIGHWAY
DEPARTMENT

Bids: June 16, 1953

Miscellaneous

SEALED PROPOSALS will be received by the President of the Levy Court of New Castle County, Room 134-A, Public Building, Wilmington, Delaware, until 11:00 A.M. Daylight Saving Time, on June 16, 1953 and at that time publicly opened for contracts involving the following approximate quantities:

CONTRACT SD-47
ROSEVILLE PARK

Lump Sum	Clearing & Grubbing
9,000	C.Y. Excavation
100	C.Y. Borrow Pit Stripping
6,000	C.Y. Selected Borrow
1,620	Tons Hot-Mix Asphaltic Conc.
3,000	Gal. R. C. 1 Tack Coat
0.5	C.Y. Cement Concrete Masonry
35	L.F. 12" R. C. Pipe
364	L.F. 15" R. C. Pipe
90	L.F. 18" R. C. Pipe
50	L.F. 24" R. C. Pipe
20	S.F. 4" Sidewalk
20	S.F. Replace Flagstone Walk
35	L.F. Resetting Brick Curb
1	Ea. Type "B" Catch Basin
3	Ea. Type "C" Catch Basin
1,640	Lbs. Castings
3,700	S.Y. Top Soil
0.80	Ac. Seeding
2,100	S.Y. Sodding
80	L.F. Perforated Corrugated Metal Pipe 6" Underdrain

CONTRACT-SD-51
WOODCREST
Surry Ave.

1,075	C.Y. Excavation
1,150	Tons Selected Borrow
840	Tons Waterbound Macadam
325	Tons Hot-Mix Asphaltic Conc.
560	Gal. R. C. 1 Asphlat
30	L.F. 4" V. C. Pipe
175	S.Y. Cement Concrete Gutters (6")
2,075	L.F. Integral Curb & Gutter
30	S.F. Cement Concrete Sidewalk (4")
1,800	S.Y. Topsoil
0.35	A. Seeding

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the County Engineer.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Suburban Development Contract No. —."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained from the County Engineers Office, upon receipt of two dollars ($2.00) for each contract, which amount will not be refunded.

Make checks payable to the Levy Court of New Castle County.

LEVY COURT OF NEW CASTLE COUNTY
BY: JOHN TAYLOR
COUNTY ENGINEER

Bids: June 9, 1953

Rt. 25 (1927)—Rts. U. S. 1 (1953) & U. S. 1 & 9 (1953), Secs. 4F, 5G, 6D 7E & 8J

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route 25 (1927)—Routes U.S. 1(1953) and U.S. 1 & 9 (1953), Sections 4F, 5G, 6D, 7E and 8J, from Cranbury Turnpike to Bayway Traffic Circle, Partial Repaving and Resurfacing Bridges, in Middlesex and Union Counties. Length of project 18.2 miles. The principal items of construction are:

Roadway Items

Estimated:

8,000	cu. yds. Roadway Excavation-Earth
35,401	sq. yds. Pavement Excavation
14,102	sq. yds. Pavement Surface Removal Bit. Conc.
3,800	tons Pavement, Type MA-BC-1 and 2
34,260	sq. yds. 9" Rein. Conc. Pavement Surface
10,950	lin. ft. White Concrete Curb

Bridge Items

1,468	lin. ft. Concrete Header
270	sq. ft. Concrete Sidewalk Slab

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 9, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 30, 1953

Algonquin Avenue Outlet Sewer

DEPARTMENT OF PUBLIC WORKS
CITY OF DETROIT, MICHIGAN
CONTRACT PW-2106

Sealed proposals for the Algonquin Avenue Outlet Sewer, addressed to the CITY ENGINEER'S OFFICE, DEPARTMENT OF PUBLIC WORKS, of the City of Detroit, and endorsed: "Proposal for Contract PW-2106" will be received at the OFFICE OF THE CITY ENGINEER, 30TH FLOOR, GUARDIAN BUILDING, DETROIT 26, MICHIGAN, until 2:00 P.M. City of Detroit Time, on June 30, 1953, at which time they will be publicly opened and read aloud. Any proposal received after the abovementioned time will be returned to the bidder unopened.

The work included consists of approximately 1⅔ miles of 16-foot inside diameter monolithic concrete sewer, to be built in tunnel in Kercheval, Algonquin, and Freud Avenues from Philip to the Freud Pumping Station. Also included are approximately 300 feet each of 10′-0″ and 12′-6″ inside diameter monolithic concrete sewers in tunnel. A reinforced concrete junction chamber is also included.

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, Drawings, and Specifications may be examined at the Office of the City Engineer during business hours, and copies may be obtained by making a deposit of $15.00 per set, which sum will be refunded upon the return in good condition of the complete set of Contract documents within ten days after receipt of proposals, or if used in submitting a bona fide proposal.

Each proposal shal be accompanied by a certified check or a satisfactory bidder's bond in an amount of not less than 5 percent of the total bid price, as security for the acceptance of the Contract.

All checks shall be made payable to the Treasurer, City of Detroit.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
CARL D. WARNER
Commissioner of Public Works
G. R. THOMPSON
City Engineer

The Commonwealth of Pennsylvania will receive sealed proposals through the Water and Power Resources Board, Department of Forests and Waters, Room 405 Education Building, Harrisburg, Pennsylvania, until 1:00 o'clock E.S.T. (2 o'clock D.S.T.), Monday June 8, 1953, for sale of the following: The electrically driven 15 inch portable hydraulic cutter head dredge "Chester". Overall length 77 feet, width 30 feet, maximum draft 4 feet, above water level clearance 13 feet. Dredge is mounted with 15" Morris centrifugal type dredge pump of 9,000 G.P.M. capacity. Hull is composed of 9 demountable steel pontoons and can be assembled on water, with motors and appurtenant equipment. Portable Electrical substation and three rubber tire trailers comprising a bank of three 500 K.V.A. single phase transformers and 2400 volt secondaries and appurtenances, fifteen 1000 ft. lengths of armored shore cable, type SH-D on reels with connection boxes and mounting accessories. One 1000 ft. length of rubber jacketed dredge submarine cable type SH-D on reel. The dredge, electrical substations and equipment are in good operating condition. Detail specifications of the equipment and proposal forms are available and inspection may be arranged at the Schuylkill River Project Office, 1973 West Main Street, Norristown, Pennsylvania. Bid shall be a lump sum amount for entire equipment listed and shall be accompanied by a certified check, drawn to the order of the Commonwealth of Pennsylvania in the amount of $10,000 as a proposal guarantee. The right is reserved to accept or reject any or all bids submitted.

S. S. Lewis
Chairman

Bids: June 9, 1953

Construction Work

Sealed proposals will be received at the office of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, 37 East Fourth Street, Newport, Kentucky, until 2:00 P.M., June 9, 1953, Eastern Standard Time, and opened immediately thereafter, for furnishing the material and performing the labor for the execution and construction of the following work:

Eighth Street Pump Station, appurtenances, and the sewers in conjunction therewith

Patton Street Pump Station, appurtenances, and the sewers in conjunction therewith

in accordance with the plans and specifications prepared by Vogt, Ivers, Seaman and Associates for the Commissioners of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, and on file in the office of the Sanitation District No. 1. Copies of plans for the complete project together with specifications and proposal forms and any further information desired, may be secured from the office of Vogt, Ivers, Seaman and Associates, Engineers-Architects, 34 West Sixth Street, Cincinnati, Ohio.

Drawings and specifications will be forwarded, shipping charges COLLECT, upon receipt of written requests. A deposit in the amount indicated will be required for the drawings and specifications:

Complete set $20.00

Refunds for the plans and specifications will be made if returned prepaid, in good usable condition, within 10 days after bids have been opened.

Bids are to be sealed and addressed to:

Sanitation District No. 1 of Campbell & Kenton Counties, Kentucky
37 East Fourth Street
Newport, Kentucky

The Commissioners of Sanitation District No. 1 reserve the right to accept or reject any or all proposals, or the proposal for any one or more of the units or sections of the work under consideration.

WILLIAM D. ANDERSON—Secretary
Sanitation District No. 1 of
Campbell and Kenton Counties, Ky.

Adjudication for Gates and Ancillary Equipment

EGYPTIAN GOVERNMENT
MINISTRY OF PUBLIC WORKS
ASWAN DAM HYDRO-ELECTRIC SCHEME

The Ministry of Public Works hereby gives advance notice that tenders will be invited at the beginning of July 1953 for the supply, delivery, erection and maintenance of gates and ancillary equipment required for the Aswan Dam Hydro-Electric Power Station, the main items of which are as follows:—

1) Main gates and trash racks for seven main and two auxiliary units.
2) Downstream gates for one or two main and one auxiliary unit.
3) Closing devices for intakes and tail race tunnels.
4) Cranes for handling gates.

Firms other than those who are in possession of the documents for the original enquiry which are no longer valid, will be required to pay L.E. 20 (twenty Egyptian Pounds) for the new tender documents, application for which should be made in accordance with the instructions contained in a further announcement to be published in June 1953.

A period of THREE months only will be allowed for the submission of tenders and on no account will any extension be granted.

Firms intending to submit offers for this work may, on application to one of the following addresses, obtain copies of three preliminary drawings:—

(a) Hydro-Electric Power Department, Ministry of Public Works, Parliament Post Office, Cairo, Egypt.
(b) Messrs. Kennedy & Donkin, Consulting Engineers, 12 Caxton Street, London, S.W. 1.
(c) Messrs. Vattenbyggnadsbyran (VBB), 29, Humlegardsgatan, Stockholm.

They are also advised to take an early opportunity of visiting the site to obtain such general information regarding working conditions in Egypt, to enable them to prepare their tender in the time limit allowed.

Bids: June 4, 1953

Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 4th day of JUNE 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

Contract No.	Type	Name of Highway and Miles	Deposit for Plans	Bid Deposit	Dept. Estimate
FACG. 53-11	Asp. Conc. Type 2A, R.R. & River Viaduct 1187'	Rochester City:Inner Loop (Genesee River) Bridge and Approaches 0.36 Mile	$25	$170,000	$2,976,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations isued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check; the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated. The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

June 2, 1953 Postponement of Bid Date

Bronze Venturi Meters Contract 422

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, May 19, 1953, for Contract 422, for furnishing, testing and delivering two 60-inch by 42-inch, one 20-inch by 12-inch and one 16-inch by 12-inch bronze nozzle type Venturi meters, instrument assemblies, bronze castings, electric cables and appurtenances for the Downsville release water chamber and the Neversink intake chamber of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

NOTICE IS HEREBY GIVEN that the receipt and opening of bids on the above Contract 422 have been postponed until 10:00 A.M., Eastern Standard Time, on Tuesday, June 2, 1953.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply, City of N. Y.; BETTY COHEN, Acting Secretary.

Bids: June 1, 1953

Furnishing and Delivering Standard Manhole Frames, Covers and Steps Lightwood Manhole Frames and Covers

WASHINGTON SUBURBAN SANITARY COMMISSION
INQUIRY NO. 003052

Sealed proposals for furnishing and delivering two-hundred (200) W.S.S.C. Standard Manhole Frames and Covers "S", one thousand (1,000) W.S.S.C. Standard Manhole Steps, twenty-five (25) W.S.S.C. Lightweight Manhole Frames & Covers "S" and twenty-five (25) W.S.S.C. Lightweight Manhole Frames & Covers "W" will be received in the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission 401y Hamilton Street, Hyattsville, Maryland, until Monday, June 1st, 1953 at 10:30 A. M. Eastern Daylight Saving Time at which time and place they will be publicly opened and read.

Specifications and drawings may be obtained from W. R. Douglas, Purchasing Agent of the Commission, 4017 Hamilton Street, Hyattsville, Md.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: June 11, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provision for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 11th day of June 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y.				
Essex	FASS 53-5	Wilmington-Black Brook, Co. Rd. 12 Project S-219(1)	1.13	Bit. Mac. Type 2 Comp. I-Beam Br. 180′	$14,000 Plans $10	$250,000
Essex	FARC 53-50	Essex-Willsboro Pt. 2 S. H. 1641 Willsboro-Keeseville Pt. 2, S. H. 8238 Project F-407(7)	6.76	Asp. Conc. Ty. 1A, Opt.	13,000 Plans $10	245,000
		DISTRICT No. 2 L. Ketchum, District Engineer, 109 No. Genesee St., Utica, New York				
Herkimer	M.T. 53-10 S.T. 53-23 R.C. 53-47	New York State Thruway, Mohawk Section, Subd. 10B (East Schuyler-Fort Herkimer); Herkimer Interchange, 6 Secondary Crossroads; Mohawk-Jacksonburg-Little Falls, S. H. 8401; Herkimer Village, East Albany St., S. H. 5060	6.98 Thy. 3.85 Acc.	9″ Cem. Conc. Pavt. 2 @ 25′ Var. Wide = 9.79 Mi. Asp. Conc. Ty. 1A, Opt. = 0.96 Mi. T. C. Bit. Mac. = 0.03 Mi. Misc. Work = 0.05 Mi. 2 Hy. Seps. Comp. I-Beams 121.8′ and 47.3′ 1 Br. Comp. I-Beam and Girders 983.9′ 2 RR Seps. Comp. I-Beams 275.6′ and 402.8′	$600,000 Plans $100	10,674,000
		DISTRICT No. 5 C. R. Waters, District Engineer, State Office Building, Buffalo, New York				
Niagara	FARC 53-52	Olcott-County Line, S. H. 9052, Project F-461(5), F-473(2)	12.55	Asp. Conc. Ty. 1A, Opt.	$18,000 Plans $10	334,000
		DISTRICT No. 7 Robert W. Sweet, District Engineer, 444 VanDuzee St., Watertown, New York				
Clinton	FARC 53-51	Mooers Village, S. H. 930, Mooers Forks-Champlain Pt. 1, S. H. 5102, Battleman Road, S. H. 1008, Projects F-576(3), F-1010(3)	3.96	Asp. Conc. Ty. 1A, Opt.	$9,000 Plans $10	156,000
		DISTRICT No. 8 J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York				
Rockland	H.T. 53-4 S.T. 53-22 R.C. 53-46	New York State Thruway, Hudson Section, Subd. 8 (Suffern-Nyack, Pt. 1); Oaklane; Hemion Rd.; Airmont Rd.; Suffern-Mt. Ivy, S. H. 1448	2.86 Thy. 0.58 Acc.	9″ Cem. Conc. Pavt. 2 @ 25′ Var. Wide = 3.08 Mi. Asp. Conc. Ty. 1A, Opt. = 0.36 Mi. 1 Hy. Sep. Plate Girder 227.4′ 1 Br. Comp. I-Beam 148.4′ 2 Hy. Seps. Comp. I-Beams 222.3′ and 226.6′	$250,000 Plans $50	4,184,000
		DISTRICT No. 9 F. W. Donovan, District Engineer, 71 Frederick St., Binghamton 21F, New York				
Chenango & Otsego	R.C. 53-49	Various Highways in Chenango & Otsego Counties	....	Removal of 149 Trees	650 Plans $10	12,000
		DISTRICT No. 10 M. E. Goul, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, Long Island, New York				
Suffolk	B.P. 53-52	West Jetty Shinnecock Inlet	....	Beach Protection (Stone Jetty and Light Tower)	5% of Bid Plans $10	525,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proopsal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3956) will be received at Boulder City, Nevada, until June 10, 1953, for furnishing labor and materials for removing rock slab, Hoover Dam and Power Plant, Arizona-Nevada, Boulder Canyon Project. Location: Hoover dam site, near Boulder City, Clark County, Nevada. Principal items are: Excavation, rock slab, 5,400 cu. yds.; drilling holes, 1,420 lin. ft.; furnishing and placing anchor bars, 13,500 lbs.; and other work. Completion time 375 days. For particulars, address Bureau of Reclamation, Boulder City, Nevada; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3957) will be received at Boulder City, Nevada, until June 10, 1953, for furnishing labor and materials for anchoring rock slab, Hoover Dam and Power Plant, Arizona-Nevada, Boulder Canyon Project. Location: Hoover dam site, near Boulder City, Clark County, Nevada. Principal items are: Drilling holes, 10,200 lin. ft.; furnishing and placing anchor bars, 115,000 lbs.; pressure grouting, 1,400 sacks; and other work. Completion time 375 days. For particulars, address Bureau of Reclamation, Boulder City, Nevada; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

St. Paul District, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this office until 2:00 P.M., C.S.T., 16 June 1953, and then publicly opened for Channel Improvement on Marsh River, Minnesota.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3963) will be received at Denver, Colorado, until June 23, 1953, for furnishing two 19.67-foot by 28.03-foot fixed wheel gates for Palisades Project, Idaho. Delivery is desired within 240 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

INSURE
COMPETITION

and get the lowest possible bid for your proposed work by placing your bids wanted advertising in this Section.

Don't limit competition to local bidding alone. Bring it to the attention of contractors the country over. They read this Section every week—make sure your bid is here where they can read it.

WANTED FOR HIGHWAY CONSTRUCTION

Capable and Experienced

FOREMEN -- SUPERINTENDENTS -- ENGINEERS

Large nationally operating heavy works contractor with Main Office located in the Midwest and branch offices & equipment yards at several locations between Mississippi Valley and East Coast has need for additional personnel to replace retirements and to expand organization resulting from increased highway construction activity involving large toll road projects underway in several regions; particularly in East.
Immediate openings for:

FOREMEN Experienced for various classes of work on heavy highway grading, including rock excavation, bridge structures, paving, drilling and blasting.

GENERAL FOREMEN OR SUPERINTENDENTS Capable of directing grading and all related items.

GENERAL FOREMEN OR SUPERINTENDENTS Experienced; for structure work and paving operations.

CIVIL ENGINEERS For field lay-out work including several competent project chief engineers to take charge of necessary office engineering and negotiations with authorities controlling projects.

PROJECT MANAGERS Several assistant project managers capable and experienced in overall direction and management to assist those managers who have several projects in hand

ENGINEER-ESTIMATOR One engineer-estimator experienced in all phases who is prepared to travel when necessary to assist our local estimators.

To qualified men these positions will have a future and will be permanent. Permanent personnel participate in established pension and profit sharing trusts, group hospitalization and other benefits. All information will be kept confidential.

P-7934, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS and DESIGNERS

With experience applicable to Oil Refinery, Blast Furnace or Steel Plant Design.

Permanent positions
Overtime—45 hour week
No age limitations

Openings available at our Cleveland, Ohio, office for:

Instrument Specifications Engineers
Equipment Specifications Engineers
Piping Designers
Structural Designers
Concrete Designers
Pressure Vessel Designers

These openings offer:

Top hourly rates
Participation in Annual Profit-Sharing Bonus if Employed Before June 1st

Write, giving complete background and experience to:

ARTHUR G. McKEE & CO.

2300 Chester Ave. Cleveland 1, Ohio

STRUCTURAL STEEL SALES ENGINEER

Exceptional opportunity for a thoroughly experienced structural engineer who can estimate & sell structural steel for all types of buildings, fabricated & erected.

Plant is long established, has large capacity, located in metro N. Y. area. State experience & salary for personal interview at our expense.

SW-7997, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SUPERINTENDENT
STRUCTURAL STEEL ERECTION

Large fabricator & erector in the NY area offers exceptional oppty for exp'd structural steel erection supt. for all types of bldgs. Write in confidence.

P-7996. Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

SANITARY ENGINEERS

California offers positions with opportunity for professional advancement. Two years experience related to treatment and disposal of sewage and industrial waste, plus college engineering degree. Salary $395 to $481. Write today. Dept. PH-2, Recruitment Section, State Personnel Board, 1015 L St., Sacramento, Calif.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

STRUCTURAL STEEL Designer wanted by a leading Middle West Fabricator—Experienced on industrial and commercial building. Permanent position and excellent opportunity with a large and established and growing company. Please state qualifications, past experience and salary requirements. P-7802, Engineering News-Record.

SALES MANAGER: Fine opportunity for right man with substantial company engaged in construction equipment field. To qualify must have experience in all branches of sales management including initiating product improvement and new products programs, directing field sales organization, building sound distributor organization and some knowledge of advertising and market forecasting. Send full particulars covering experience, education, etc., to P-7852, Engineering News-Record.

WANTED—ENGINEERS experienced in water works, sewers, paving, buildings for design and supervision of construction; also architectural draftsmen. Advise education, experience, salary requirements, and when available. P-7920, Engineering News-Record.

CONSTRUCTION SUPT., N.Y. School. Must be pusher. Good salary & future. Replies strictly confidential. Complete resume to P-7999, Engineering News-Record.

SANITARY Engineer—for design of water, industrial waste and sewerage facilities for established firm of Consulting Engineers, location Ohio. Must have degree and five years of actual experience. Permanent position intended. Salary open. Submit complete resume of education, experience, references, salary requirement and availability with first letter. P-7972, Engineering News-Record.

STRUCTURAL DESIGNER—reinforced concrete for established firm of Consulting Engineers, location Ohio. Minimum six years design experience, degree required. Must be P.E. or qualified. Permanent position intended. Salary open. Submit complete resume of education, experience, references, salary requirement, and availability with first letter. P-7973, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES ENGINEERS—Several territories in Mid-Atlantic States with established National concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. RW-7778, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

EXPERIENCED ARCHITECT'S Superintendent available June 1st desires position within 100 mile radius of Philadelphia, Pa. PW-7525, Engineering News-Record.

MAINTENANCE SUPERINTENDENT — 19 years in top supervision of construction, maintenance and chemical plant equipment fabrication—installation. Proven ability to construct and stay on as maintenance head. Prefer South. PW-7900, Engineering News-Record.

BRIDGE DESIGNER. Graduate Civil Engineer with experience estimating, detailing, designing and supervising design of short-span highway and railroad bridges desires change in association. Present salary $6,250. PW-7928, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Concrete pipe manufacturer. Considerable experience. PW-7856, Engineering News-Record.

CONSTRUCTION EXECUTIVE Lic. Engr. NY qualified journeyman 5 trades. Completely qualified in take-off, cost analysis, bidding designing, advanced preparation, with field and office supervision on Bridges, industrial and general construction. PW-7894, Engineering News-Record.

ENGINEERS - GEOLOGISTS

**Technicians Experienced in Soils—
Concrete and Asphalt Control Work.**

Also

**Graduate Engineers with
P.E. Registration having extensive
experience in Soils—Concrete and
Asphalt. Location in Midwest.**

P-7799, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

ENERGETIC YOUNG Civil Engineer with excellent background and experience record is seeking a position as Chief Engineer on a major project involving both design and construction. Prefer foreign assignment. PW-7869, Engineering News-Record.

STRUCTURAL ENGINEER, 31, married, BSCE, registered. Presently structural designer Arch-Eng. firm. Desire to relocate for permanent position. Minimum salary $5700. PW-7843, Engineering News-Record.

CIVIL ENGINEER—Grad., Mich. Registration. 15 yrs. varied exp. Desire position in Adm. capacity. Present salary $7000. PW-7984, Engineering News-Record.

ENGINEER ESTIMATOR Graduate C.E. registered P.E. Married, age 34, twelve years experience Field Engineer Estimator, now serving in executive capacity. Desires position with future in established firm. Domestic or Foreign. Excellent references. PW-8001, Engineering News-Record.

CIVIL ENGINEER, Member, A.S.C.E. and A.R.E.A., 64 years, graduate of Prague I. of T., recent immigrant; 40 years of consulting, design and contracting practice in general civil, hydraulics, railroading in Europe and South America, seeks position in Nebraska and neighboring states. Speaks good English. PW-8007, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — all types of Industrial and Commercial construction. Graduate Civil Engineer. 39 years old. 18 years construction experience. Presently construction superintendent Steam -Electric Power Plant. Available July. PW-7974, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Engineer desires work in New England. Experienced industrial plants, housing, heavy construction, bridge and marine work, skilled estimator. PW-7967, Engineering News-Record.

CIVIL ENGINEER—Graduate, Oregon Registration. Experienced Heavy Construction, Design. Wants position near smaller city, Pacific Slope. PW-7963, Engineering News-Record.

CIVIL ENGINEERING graduate with 18 years experience. 4 years on concrete and earth construction. 14 years office engineering including writing specifications for concrete and earth construction, quantity and cost estimating, and general office administration. PW-7964, Engineering News-Record.

SPECIFICATION WRITER and Estimator, graduate, over 30 years wide experience building and general construction desires position Far West or Alaska. Now located Pacific Coast. Minimum weekly salary $125. PW-8015, Engineering News-Record.

MILLWRIGHT SUPERVISOR—domestic or foreign 20 yrs. installing machinery in refineries, steel mills, power houses and foundries. Age 42. PW-8014, Engineering News-Record.

HYDRAULIC ENGINEER, 42, doctor's degree, diversified experience. Presently employed, desires relocate to North-East or South-West. PW-8013, Engineering News-Record.

ENGINEER—C.E. graduate, registered. Five years' experience sewage treatment and water treatment design. Desire position in Florida. PW-8011, Engineering News-Record.

PART TIME WORK WANTED

STRUCTURAL SQUAD, designers & draftsman, available for assignments. Experienced steel & concrete; public & indust. bldg. super. & fdm. PTWW-7906, Engineering News-Record.

WORK WANTED

PRELIMINARY INVESTIGATIONS, studies reports, field engineering, and design for highways, railroads, industrial development in foreign countries. Fee basis or contract. WW-7870, Engineering News-Record.

STRUCTURAL ENGINEERING

ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. ***Forty-third year. Write today.***

WILSON *Engineering Corp.*

College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

THEORY OF STRUCTURES for STATE BOARD EXAMINATIONS

Lectures on 33 rpm plastic records used with illustrated syllabus.

***Write today*—J. E. McMahon, 279 Santa Ana Ave., Long Beach 3, California**

LICENSED CIVIL AND STRUCTURAL ENGR.

WANTED

GENERAL SUPERINTENDENT

One of the largest construction firms in the South is interested in securing the services of a full time General Superintendent to cover approximately three of the fourteen States in which this company operates. This man should have building construction background with experience in mass housing, office buildings, shopping centers, apartment buildings. To the right man we are willing to pay an excellent salary and bonus. Age between 35 and 45. Please send full particulars about background, personal habits, age and references to

P-7998, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

CIVIL ENGINEERS

for Construction and Design

Salary $3900 to $6000

Write for Information

IOWA STATE HIGHWAY COMMISSION

Ames Iowa

DESIGN ENGINEER

The services of a design engineer, mechanical preferred, are required by large organization in Montreal, Canada. Must be thoroughly familiar with portable and permanent crushing plants, asphalt plants, ready-mix concrete plants and all types of road-building equipment, with eight to ten years' experience in this field and with engineering degree or equivalent. Permanent position if applicant qualified. Please give age, experience and references and state salary expected. All replies will be treated in strict confidence.

P-8016, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT

Superintendent and Foreman

Experienced in construction of sewers and water mains for work in or near Indianapolis, Indiana. This is a year round position for a capable and dependable superintendent. Please give experience, age and references.

P-7904, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instructions by mail. Send today for sample lesson and complete details

Geo. E. Deatherage & Son, Dept. 101
411 S. 5th Ave. Lake Worth, Florida

SUPERINTENDENTS

with substantial experience in

CONCRETE PIPE PRODUCTION

Nationally known producer of concrete pipe offers several exceptional permanent positions to experienced field men capable of supervising manufacture of concrete pressure and non pressure pipe throughout the United States. Also several openings for top-notch master mechanics preferably with previous experience on pipe machinery.

This reputable, well established Company is prepared to offer to the right men lifelong secure positions, unparalleled opportunities for growth, personal recognition for individual accomplishments, generous company benefits in addition to high starting wages.

Only men eager and able to get results need apply.

P-7597, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

URGENTLY NEEDED

OPENINGS FOR EXPERIENCED

MECHANICAL, ELECTRICAL, AND CIVIL ENGINEERS

Have Large Volume of Private and Defense Work. Salaries Commensurate With Ability.

WELL ESTABLISHED FIRM

HOME OFFICE — ROANOKE, VIRGINIA
BRANCH OFFICE — NORFOLK, VIRGINIA

Write Giving Full Information or Call Collect
23429 Roanoke

INTERVIEW WILL BE ARRANGED

HAYES, SEAY, MATTERN & MATTERN

ARCHITECTS & ENGINEERS
ROANOKE, VIRGINIA

CHIEF ENGINEER AND GENERAL MANAGER

WANTED FOR PERMANENT POSITION by large, well established, expanding New York construction company, operating extensively on the eastern seaboard and Latin America. Background of experience in construction management, supervision and estimating absolutely essential. Compensation and opportunity to grow commensurate with responsibility of position. Write fully, in strict confidence.

Address Dept. 38-N
Box 226, Church St. Station, N. Y. 8, N. Y.

WATER WORKS SUPERINTENDENT

To direct operations of the city water department. Deep well water supply system experience required. Engineering background desirable but not essential. Salary $480 per month. Apply:

CIVIL SERVICE COMMISSION
City Hall, Wauwatosa 13, Wisconsin.

PRICES CUT ON NEW EQUIPMENT

1—Model 202 Osgood 10 ton Truck Crane mounted on Richardson Carrier
1—Model 200 Osgood Half Yard Shovel on cats with diesel engine
1—American 31 H.P. motor grader
1—365 ft. G-D Portable Air Compressor
1—210 ft. G-D Portable Air Compressor

R. B. Wing & Son
THE FINEST IN NEW AND USED EQUIPMENT
384 BROADWAY Tel. 3-4161 **ALBANY, N.Y.**

FOR SALE

BOILER, INDUSTRIAL LOCOMOTIVE 74 H.P., 1950

1—Boiler, Vertical, Godfrey-Kellar 54" x 11', 1950
1—Allis Chalmers Tractor Model HD 20 G, with 4 cu. yd. front end loader, 1952
1—Bucyrus-Erie 50 B Steam Crane
1—34 E Ransome Paver with Buda Gas Engine, Model M 766
1—Apfco Widener Model 85
1—Euclid Loader Model 9 B V, powered by GM Diesel and with new belt and spare parts.

Also other miscellaneous equipment

The above equipment located in Northern New Jersey

UNION BUILDING CORPORATION
631 Main Avenue Passaic, N. J.
PRescott 7-1200

A VERY LARGE AUCTION

COMPLETE PIPELINE SPREAD

PLUS

HEAVY DIRT MOVING EQUIPMENT

Mon. & Tues., June 8 & 9th,
OKLAHOMA CITY, at 9:30 A.M. each day,
sale to be at the large cattle barn Oklahoma State Fair Grounds, held inside Rain or Shine. AN EXCEPTIONAL SALE, almost all of the equipment is late model and has been completely overhauled. The majority of the pieces will carry a parts Guarantee!

79—TRACTORS:—9 D-8 Cats; 12 D-7 Cats; 11 D-6 Cats; 11 D-4 Cats; 6 D-2 Cats; 13 IHC TD-24's; 6 IHC TD-18's; TD-14A; 5 IHC TD-14's; TD-9; T-9; M.R.S. wheel tractor; other tractors both gas and diesel. The tractors are equipped with Trackson sidebooms, Hyster winches, dozers both straight & angle, and some are bare.

DRAGLINES:—2 Bucyrus-Erie 15-B's, combination dragline-backhoe-clam; 3 Insley Model K-12's, one backhoe-drag, one backhoe-drag-clam, one backhoe; Thew TL-20 backhoe-dragline; Wayne Model 66 Crane like new; Shield-Bantam backhoe-dragline on GMC Truck.

DITCHERS:—5 Cleveland Ditchers, Models 140A, 140, 320-A, 320-3, all are late model.

EARTH MOVERS:—2 Cat DW-21's w/Cat scrapers, both completely current models. 2 LeT Model B-34 Tournapulls, just 18 months old. All 4 have been completely overhauled & in excellent condition throughout.

PATROLS:—3 Cat 8T Series #12's; 5 Cat #12's 7T & 9K series; 5 Cat #112, #11 & #10's. 10 motor grades, AC, Adams, Warco, Galion of various sizes.

COMPRESSORS:—3 Gardner-Denver WH-500's, 2 almost new; 2 LeRoi Tractair 105 compressors; Worthington 315.

4 Cleveland Twin Drills; Crose Road Boring machine, angle type; Crose Line-Travelling Cleaning & Priming machine; Dope pots; LS, LP, "W" LeT scrapers; Hyster D7 Hystaway; Cat D17000 engine '52; Diesel & gas power units; generators; 2 Cat #25 DDPCU's; Sheepfoot Rollers; 12 water pumps, chain saws. 29 TRUCKS of various sizes, all overhauled. Many, many other pieces to numerous to mention.

EACH - PIECE - POSITIVELY - SELLS - TO THE - HIGHEST - BIDDER - WITHOUT - LIMIT OR - RESERVATION.

Write-wire-call the auctioneers for complete descriptive sale bill. The Trojan Construction Co., Inc., owns the pipeline equipment, Pool Construction Co., owns part of the dirt moving equipment and the Hoover Equipment Co., owns the balance of the dirt moving equipment.

Remember:—The majority of these pieces carry a Warranty, almost all is late and current model and practically all has been completely overhauled.

Trojan Construction Co., Inc., *Owner*
Pool Construction Co., *Owner*
Hoover Equipment Co., *Owner.*

FORKE BROTHERS
THE AUCTIONEERS
LINCOLN, NEBR.
321 SHARP BLDG. Phone 2-7045

SETTLED

Commercial and Industrial Concrete Floors and Airport Runways Raised and Stabilized by Hydraulic Pressure.
15 yrs. experience

LEE AND COMPANY
4545 De Tonty St. Louis 10, Mo.
Lee Garell, Mgr. Mohawk 4414

EXCAVATING BUSINESS

A good money making excavating business in Beloit, Wisconsin, fully equipped with all necessary modern machinery, and operating in an area of 25 Sq. miles, with a population of approximately 200,000. Included is a very large equipment building with 4 enormous overhead doors; and a beautiful 6 room ultra modern ranch type residence. The business and residence occupy a piece of land 130' x 250'. The full price for business with all the machinery and equipment, and the residence is $75,000.00. For further details write

UNDERHILL AGENCY
531½ E. Grand Ave. Beloit, Wis.
Telephone College 6065

GURLEY REPAIR SERVICE

- Send your Gurley instrument to the factory for repair, rebuilding, adjustment, or service. Genuine Gurley parts, properly fitted, available from stock. Factory workmanship and equipment. Estimates submitted. Shipping box furnished free on request.

W. & L. E. GURLEY
540 Fulton Street, Troy, N. Y.

➤ Write for leaflet "Gurley Repair Service"

WANTED

WANTED

2000 lin. ft. to 3000 lin. ft. of 15" concrete paving forms. Also ½ to ¾ yard truck crane. Would like to rent with option to purchase. Guarantee minimum of 5 months.

W-7779, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED TO BUY

Ten 4-cubic yard CONCRETE BUCKETS

with air operated discharge gates. Send price, make, age, location and date available to

MERRITT-SAVIN
Folsom Dam, Box 326 Folsom, California

---

100 TON STIFFLEG DERRICK

175' boom. Mast 74'5". Legs 105'6". Sills 75'9". 30' bullwheel. With 200 HP 3 drum electric hoist 3/60/440. With 30 HP Independent elec. swinger.

Derrick will lift 12 tons at 178' radius.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. St. Louis 1, Mo.

PUMPCRETES

Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

FOR SALE OR RENT

Cleve Trenchers model 75, 95, 110 and 140
Pioneer Cleve Trencher lateral
Buckeye Model C15, C10, 306, 410, 406, 160 & 120
P&H Model 1030, 1540
500 Cu. ft. Gardner Denver Steel wheels like new
5—Wagon drills

AIR COMPRESSOR RENTAL CO.
19615 Nottingham Rd. Cleveland, Ohio

KOHLER ELECTRIC PLANTS

Gasoline and Diesel Engine Driven
500 watt-1500 watt Air Cooled
2KW-30KW Water Cooled
Rental—Sale—Service

DIESEL MOTORS COMPANY
Port Washington, N. Y. PO 7-2000

TO HELP YOU...

find equipment you need

"Searchlight" Advertising

STOCK SPECIALS

For Sale or Rent

1—P & H Model 855 Crawler Shovel, 2 yd. capacity, Cat. Diesel power. Reconditioned. Crane boom available.

1—P & H Model 700 Crawler mounted Crane, 1½ yd. capacity. Gas power. Good all-around condition.

1—Osgood, 1 yd. Crawler Hoe & Crane, 50' boom. Gas Power. Good Condition.

1—Koehring Model 301 ¾ yd. Crawler Crane, 50' boom. Serial #1277. Very good used condition.

1—Bay City Model 45 ¾ yd. Crawler Hoe-Shovel-Crane. Late model in perfect condition. Cat. D318 or GM Diesel power.

1—Beyers, Model 83, ¾ yd. Crawler Hoe or Crane, gasoline power. Rebuilt.

1—Link Belt Speeder Model D-4 Crawler Crane, 35 ft. boom, 16" crawler shoes, Cat. D-7700 engine. Reconditioned.

1—Bay City Model 30, Heavy Duty ½ yd. Crawler Shovel or Hoe. Gas power. Reconditioned.

1—Bay City Model 25, ½ yd. Crawler Hoe or Shovel. Late Model. Gas power. Rebuilt.

1—Bay City Model 15-T-40 Cranemobile ½ yd. capacity. Late model. Excellent condition. Hoe attachment available.

1—Browning Truck Mounted Crane 10 ton capacity Model "E," powered by Cummins diesel and mounted on 10 wheel Mack chassis. First class condition throughout.

1—Universal Truck Crane, 28 ft. boom, mounted on A. C. Mack Chassis. Single axle rear.

1—Bay City Model 65 or 650 Shovel Attachment with 1¼ yd. shovel dipper. Practically new.

1—P & H 255A Hoe Attachment. Practically new.

Clamshell Buckets, ⅜ to 2 cu. yd., also several Crane Booms—Trench Hoes and Shovel Attachment — Assorted makes.

1—D-8 Caterpillar Tractor 1-H Series with Hydraulic Bulldozer, also D.D. P.C.U. 22" Shoes, with new set of tread pins & bushings, sleeves, pistons, rods, main bearings. Very reasonably priced.

Check on what you may require.

EUGENE P. READING, INC.
Walnut St. & B. & O. R.R.
Roselle, New Jersey
Chestnut 5-0200—New Jersey

FOR SALE

SEAMAN SELF-PROPELLED PULVI-MIXER

7' WIDTH, VERY GOOD CONDITION

KEYSTONE CONSTRUCTION CO.
MEADVILLE, PENN'A.

FOR SALE

50—1½ yard Blaw Knox, R-46, Bottom Dump Concrete Buckets.

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Avenue, St. Louis, Mo.
STerling 1950
Box 153 Grahamsville, New York
Grahamsville 2861

FURNIVAL'S

TRADING POST

A TWICE MONTHLY LISTING OF DESIRABLE USED EQUIPMENT

MODEL A KRANE KAR — a good buy at. **$5000**

INGERSOLL RAND D-60 COMPRESSOR—on 2 pneumatics, Waukesha eng. **$800**

LE TOURNEAU SUPER "C" DOZER — complete with Buda engine and double scraper hook-up. This piece of equipment just came into our yard. It's in excellent condition. You'll find it a very good buy **$14,000**

SCHRAMM COMPRESSOR — model 120 on 4 pneumatic tires, Buda eng. **$750**

RANSOM MOTO-MIXERS — We have three 3 yd. models with Hercules eng. **$1300** ea.

INGERSOLL RAND PORTABLE COMPRESSOR—Model IKA-500 with 500 cu.ft./min. capacity. Demonstrator. Powered by an International Harvester engine. Top value at. **$9,257**

MIXERMOBILE—model 200 with 35' tower and 10' extension. In excellent condition. Price upon request.

PARSONS TRENCHER—model 200 with 12" bucket, 16" cut, serial #1723. In good condition, just off a big job. The contractor has no further use for it, so you save. Priced to insure your profit, now and in the future **$4,000**

INTERNATIONAL TRACTOR — model TD-18 with steel tracks. Powered by an International diesel engine. Complete with BE dozer blade. In very good condition **$9,000**

LE TOURNEAU SUPER "C" TOURNAPULL WITH LP SCRAPER. In good condition and at a good price. **$4,500**

LORAIN ½ YD. TRUCK CRANE — powered by Hercules six cylinder gas engine. Has 25' boom; is mounted on ten wheel Thew moto-crane carrier powered by Waukesha gas engine with good 11:00 x20 — 12 ply tires, live boom. You're in business with this one **$13,000**

LA PLANT CHOATE SCRAPER — capacity 14 yd. struck, 17 yd. heaped. Powered by Buda engine. In excellent condition. We'll give you a good price.

SUBJECT TO
PRIOR SALE.
WRITE, WIRE,
CALL AT ONCE

FURNIVAL
MACHINERY CO.
54th and Lancaster Ave., Phila. 31, Pa · TR 7-5200

For Sale

CURRENT MODEL JOHNSON CENTRAL MIXING PLANT

COMPLYING WITH CORPS OF ENGINEER SPECIFICATIONS

consisting of
400-CUBIC YARD OCTO BIN
1,000-BBL. CEMENT SILO AND ELEVATOR
TWO 2-CUBIC YARD KOEHRING TILTERS
BATCHERS, CONTROLS, RECORDERS, ETC.

Arrangement is such that two additional 2-cubic yard tilters can readily be added. Entire plant is two years old and has placed only 40,000 cubic yards concrete. Can be inspected at Somerset, Kentucky. AVAILABLE IMMEDIATELY.

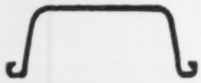
E. J. ALBRECHT COMPANY 2626 West 26th St. Chicago 8

PILING

STEEL SHEET PILING

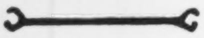
Available from stock. Will also roll to size and specifications.

LARSSEN Arch Web



High section modulus • Very great durability • Great longitudinal strength • High rigidity • Uniform interlock

UNION Straight Web



For cellular construction
High interlocking strength

Let us design your sheet piling structure ECONOMICALLY.

KURT ORBAN CO., INC.
205 East 42nd St., N. Y. 17, N. Y.
Phone: MU 4-7700

RENT STEEL SHEET PILING

"Faster From Foster"—the exact lengths and sections — all standard makes—of Rental Piling to meet your job needs. Also Rent: Pile Hammers and Pile Extractors.

RAILS • TRACK ACCESSORIES • PIPE • WIRE ROPE

L. B. FOSTER co.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

3700 pcs. 72-16 ft. Carn. MP-101-West Coast
418 pcs. 60-30 ft. Carn. M-116-Illinois
310 pcs. 35-26 ft. Beth. DP-2-Texas
487 pcs. 32 ft. Inland I-23-Chicago
383 pcs. 16-15 ft. Carn. M-112-Missouri

Other lengths & sections used & new at other locations in United States for rent.

We have Nation-wide reputation for effecting QUICKEST SHIPMENTS

All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job. Wire, Write or Phone

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

STEEL SHEET PILING

479 PCS. Z-27 LB.—40 FT., EAST COAST.
562 PCS. DP-2—40-45 FT., GULF COAST.
200 PCS. AP-3—60 FT., N. Y.
560 PCS. DP-2—30, 35, 40 & 60 FT., N. Y.
2500 PCS. MP-101—60'-70 FT., W. COAST
300 PCS. DP-2—60 FT., MASSACHUSETTS.

All Sections Bought - Sold - Rented

R. C. STANHOPE, Inc.
60 E. 42nd St. N. Y. 17, N. Y.

FOR SALE

STEEL SHEET PILING

(NO CMP ALLOTMENT NEEDED)

AT CHIEF JOSEPH, WASHINGTON

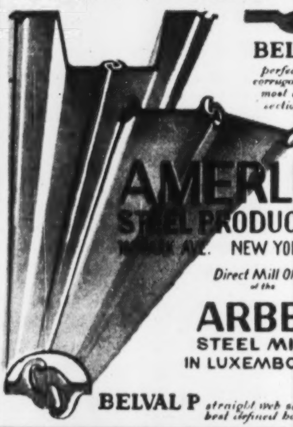
Shipped New—Used Only One Job

CARNEGIE Length	MP-101 Pcs.	MP-102 Pcs.	TEES Pcs.
72-68 ft.	65	81	0
65-60 ft.	800	58	1
55-50 ft.	65	3	7
45-40 ft.	645	0	6

Also quantity 35 Ft. and shorter—Quick Shipment. Regardless of job, location. Write, Wire or Phone

MISSISSIPPI VALLEY EQUIPMENT CO
509 Locust St.
CHestnut 4474, St. Louis 1, Mo.

STEEL SHEET PILING



BELVAL Z
perfect range of corrugated sections most economical section moduli

AMERLUX STEEL PRODUCTS CO.
[illegible] AVE. NEW YORK 17, N. Y.

Direct Mill Office of the

ARBED
STEEL MILLS
IN LUXEMBOURG

BELVAL P *straight web section best defined hooking*

STEEL SHEET PILING

210 Pcs 40-60 ft M-112 So. Dakota
600 Pcs 35-40 ft M-112 Kansas City
66 Pcs 27-29 ft M-116 Kansas City
295 Pcs 17-19 ft M-112 Kansas City
86 Pcs 15-16 ft I-23 Kansas
117 Pcs 14-16 ft I-23 Missouri
70 Pcs 11-19 ft M-116 Oklahoma

Available for prompt shipment
Other lots at various locations

CONTRACTORS MACHINERY COMPANY
Phone Valentine 4740
2637 SW Blvd Kansas City 8, Mo.

If there is anything you want that other readers can supply

OR . . . ***something you don't want***—that other readers can use—

Advertise it in the
SEARCHLIGHT SECTION

BELT CONVEYOR: Portable 24" x 50 ft. gasoline powered, NEW condition.

CEMENT BIN: 400 bbl. capacity overflow, NEW condition.

FRONT END LOADER: Sheppard ¾ yd. capacity, NEW condition.

LOCOMOTIVE CRANE: Link Belt 25 ton capacity, standard R.R. gauge, gasoline powered, cast steel trucks, air brakes, with or without 1¼ yd. Williams clam shell bucket, thoroughly modern, excellent condition. Located Minnesota. For sale or rent.

BUCKET: Blaw Knox type W730, 2½ yd. clam shell, new condition.

DIESEL MOTOR: Caterpillar D13000 portable on skids, 122 H.P.

HOIST SPECIALS: 1—Single drum, all steel, 10' dia., 6' face, 1¾" rope, 600 FPM, 900 H.P., 82,000 lbs. working load. 1—Double drum 10' dia., 1200 ft., 1⅞" rope, 1400 FPM, 1200 H.P. 1—Vulcan, double drum, 200 H.P., 8' dia., 4' face, one drum clutched. 1—Single drum 250 H.P., 5'6" dia., 46" face, 1-¼" rope. All the above with all auxiliary equipment. Other Hoists 100 H.P. to 1050 H.P., single and double drum, with electrical equipment.

WE BUY AND SELL EQUIPMENT THROUGHOUT NORTH AND CENTRAL AMERICA

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

POWERS

CANVAS COVERS

We carry full stock of waterproof treated covers. All sizes — 10 ounce — 12 ounce — and 14.90 ounce. *(Weight of Duck before Treatment)*

Powers & Co. 5929 Woodland Ave.
Philadelphia, Pa.

For Sale

MANITOWOC DRAGLINES

Model 4500

For Sale or Rent

Manitowoc Model 3500 Liftcrane, Clamshell, Dragline combinations. 2½ cu. yds, 60 ton capacity.

Reply to

Clemens Construction Co.
P. O. Box No. 266, West New York, N. J.

FOR SALE!

NEW SCHRAMM 600 PORTABLE

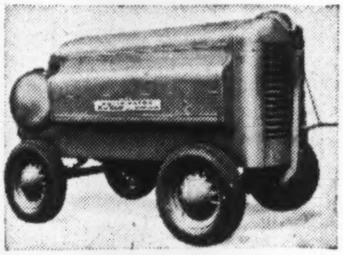
PNEUMATIC TIRES
SPRING MOUNTED

BARGAIN!

WILL CONSIDER RENTAL—PURCHASE

UNION STANDARD SUPPLY CO.
361 B'way N.Y.C. Cortland 7-4950

CAN'T BEAT THIS
TEN MORE PORTABLE COMPRESSORS
AT YOUR PRICE



60 CFM INGERSOLL (Gas) 2P—$950
105 CFM WORTHINGTON (Gas) 4P—$1800
105 CFM INGERSOLL (Oil) 2P—$1900
105 CFM WORTHINGTON (Gas) 2P—$2100
105 CFM INGERSOLL (Gas) 4P—$1900
160 CFM WORTHINGTON (Gas) 4P—$2300
210 CFM WORTHINGTON (Gas) 4P—$2400
315 CFM WORTHINGTON (Gas) 4P—$2700
315 CFM WORTHINGTON (Diesel) 4P—$3300
500 CFM WORTHINGTON (Diesel) 4P—$6500

GUARANTEED PERFORMANCE. INSPECT THEM — SEE THEM RUN. RENT ONE FOR 60 DAYS. APPLY ON RENTAL PURCHASE.

AMERICAN AIR COMPRESSOR CO.
Dell Ave. & 48th St. North Bergen, N. J.
UN ion 5-4848

FOR SALE
Used — Immediate Delivery

International TD-24 Tractor with Bucyrus-Erie Cable Bulldozer
Late Model—Reconditioned and Guaranteed

BROWNING T15 Motor Crane
CASE Tractor with 1 yd. Lull Loader
CAT. D-4 Tractor with Loader
HOUGH HAH 15 cu. ft. Payloader
HOUGH HF ¾ yd. Payloader
INT. TD-6 B-E hyd. Bulldozer
INT. TD-9 B-E hyd. Bulldozer
INT. TD-14 Isaacson hyd. Bulldozer
INT. T-14 Isaacson hyd. Bulldozer.
INT. TD-18 B-E hyd. & cable Bulldozer
INT. LF 211 Truck Chassis
LaPLANT-CHOATE 8 yd. Scraper
LINK-BELT HC-70 Motor Crane
LORAIN L-41 Crawler Crane
NORTHWEST 105 Crawler Crane
NORTHWEST #2 Crawler Crane & Hoe
P & H MODEL 150 12½ Ton Motor Crane
UNIT 1020 ¾ yd. Crawler Shovel

UNION, N.J.
U.S. 22
Unionville 2-7400

EHRBAR SINCE 1903
29 MESEROLE AVENUE
BROOKLYN 22, N.Y. EVergreen 3-5000

WESTBURY, L.I.
JERICHO TPK.
Westbury 7-5000

FOR SALE
CONTRACTOR SELLING OUT
ALL EQUIPMENT

Koehring Shovel 1½ Yd. Cat Diesel New 1951	$35,000.00
Marion Shovel ¾ Yard Crane & Backhoe G. M. Diesel extra large tracks new 1948	$17,000.00
Lorain Shovel ¾ Yd. and Backhoe Cat Diesel new 1950	$17,000.00
Unit ½ Yard Crane new 1951	$7,000.00
2—Unit ½ Yard Backhoes, Diesel	$8,500.00
H. D. 20 with Pusher block 17 Yard La Plante Choate wagon, Used 400 hrs.	$28,000.00
H. D. 19, new motor, new tracks, angleblade	$10,000.00
3 Garwood Carryalls 11 Yards	$3,500.00
H. D. 9 Angleblade. Used 4 months	$9,000.00
5 H. D. 14 Bulldozers with blades	$3,500.00 to $6,500.00
Cat D. 6 Angleblade new 1951	$7,500.00
Grader Cat #12. Like new	$7,500.00
3 Terra Corbras, new motors. 80 pct. rubber.	$6,500.00

Griffin Well Point System
Also Trucks—Concrete Mixer—Fordson Tractor
Contractor Disposing Surplus Equipment

FELIX CLAUSS & SONS
4400 "D" Street Philadelphia 20, Penna.
Phone: Michigan 4-7963

DEPENDABLE USED MACHINES

SPECIAL:—Bay City 180T60 truck crane, 20 tons capacity, condition like new. Come see it!

Lorain 40 shovel
Universal ½ yd. hoe
Bay City 45 dragline
Galion motor grader
Huber 5-8 ton roller
Lorain 40 dragline with 30" shoes
Silent Hoist Krane Krawler
Morris 10" manganese gravel pump
New Pioneer 3 x 14 scrubber screen
Buckeye 70 with magnet generator
Waukesha 6MZR engine
Eagle cinder crusher
Pioneer 4 x 8 screen
48" lifting magnet
3 yd. Dumpcrete

FOR RENT.—cranes, draglines, backhoes, buckets, and all other accessories.

10002 Southwest Highway **TRACTOR & EQUIPMENT CO.** Oak Lawn, Ill.

NOTICE TO BIDDERS

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, until 10:30 A.M., Wednesday, June 3, 1953, and all bids will be opened and publicly read in the City Council Chamber at 10:45 A.M. on that date for:

THE SALE OF 707 TONS OF USED AND NEW STEEL SHEET PILING.

Forms and necessary information may be secured from the office of the City's Purchasing Agent, 904 City Hall, Houston 2, Texas.

Cashier's Check or Certified Check in the amount of 10% of the bid will be required. The City reserves the right to reject any and all bids or to accept any bid or combination of bids deemed advantageous to it.

Dated this 14th day of May, 1953.

M. H. Westerman,
City Secretary

EST. 1904
DAVIDSON
PIPE COMPANY INC.
ONE OF THE LARGEST STOCKS IN THE EAST
Seamless and Welded 1/8" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging —
Fittings — Valves.
Call GEdney 9-6300
50th St. & 2nd Ave., B'klyn 32, N. Y.

SURPLUS EQUIPMENT
FOR SALE OR RENT
Rebuilt—A1 Condition

1 Model 6 N.W. Shovel, diesel
1 Caterpillar D8 Bulldozer
1 Apaco Stone Paver, Model P120
1 New Shovel Front for Model 6 N.W.
1 Used Shovel Front for Model 25 N.W.

WILLIAMS
CONSTRUCTION COMPANY
Middle River, Md. Phone: Essex 1310

FOR SALE
Rent or Rental Purchase:
Approximately
50 WELDING MACHINES
Gas Engine & Electric Motor Driven. Used. Also welding cable & Nelson Stud Welding Units.
ES-7615, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

GLOBE PIPE & FITTING CO.
VALVES FITTINGS NEW PIPE USED FOR ALL PURPOSES
785 Metropolitan Ave., Brooklyn 11, N. Y.
EVergreen 7-6220

FOR SALE—*Immediate Delivery*
C.I. Water Pipe and Fittings—
AWWA Standard

We specialize in pipe and fittings which are hard to get, having in stock such as the following:—

5 Lengths 60" B&S Pipe, Cl. D. 12' long
3—60" x 24" Solid Sleeves, Cl. D.
1—60" B&S 45 deg. Bend, Cl. D.
20" to 36" B&S 45 deg. Bends
3" to 30" Y-Branches—Type 2

Also C. I. B&S Pipe from 2" to 36". C. I. Flanged Pipe from 3" to 24". Always on hand a complete line of C. I. Fittings—al sizes and kinds.

TAGCO, INC.
111 Front St. Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

FOR SALE
Steel Sewer - Tunnel Forms & Travelers
120 LF 7' x 7' Adjustable to 7' x 6'
60 LF 7' x 7'
Panels 5' for assembly in 20' units on Traveler
120 LF steel invert forms
12" radius 8' panels
A. S. WIKSTROM, INC., SKANEATELES, N.Y.

Pipe Sizes 1/8" to 72" OD
PIPE, VALVES & FITTINGS
pipe piling • culverts • valves
specialists in prefabricating pipe
ALBERT PIPE SUPPLY CO., INC.,

CUTTING-THREADING-FLANGING-WELDING
BEVELING-BENDING-COILING-LINING
TO ALL STANDARD SPECIFICATIONS
"one call gets them all"
fittings
- FLANGES
- WELDING
- IRON-STEEL

SPEEDLAY pipe systems
Berry at North 13 Sts., B'klyn, N. Y.

FOR SALE

20,000' of 3 Conductor 2/0 Steel Taped Parkway Cable, Type RJFJ, 3000 V.
3,500' of 3 Conductor #2 Steel Taped Parkway Cable, Type RJFJ, 3000 V.
2—45 KVA, 2400 V. Primary 480/240 V. Secondary, 3 Phase, Dry Transformers
2—75 KVA, 2400 V. Primary 480/240 V. Secondary, 3 Phase, Dry Transformers
5—112½ KVA, 2400 V. Primary 480/230 V. Secondary, 3 Phase, Dry Transformers
3—100 KVA, 2300 V. Primary 460/230 V. Secondary, Single Phase, Oil Cooled Transformers
3—50 KVA, 2400 V. Primary 480/240 V. Secondary, Single Phase, Oil Cooled Transformers
3—100 KVA, 2400 V. Primary 480/240 V. Secondary, Single Phase, Oil Cooled Transformers
50—Misc. 2, 3, 5 & 15 KVA Single Phase Transformers. Also numerous switches, metal switch cabinets, 50 and 100 amp. cutouts, circuit breakers, etc.

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY

1319 Macklind Avenue, St. Louis, Mo. STerling 1950
Box 135—Grahamsville, New York Grahamsville 2861

FOR SALE

New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS PILE SECTIONS

28 PIECES 12" BPS 53 LB. 60/70 FT.

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.
We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
14-23 34th Avenue
Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave.
New York City, N. Y.
CYpress 9-5440

WIRE ROPE

WORLD'S LARGEST STOCK
Immediate Delivery
PRICED BELOW REGULAR MILL PRICES

50,000'— ⅝" 6x19 HC Plow & Impro. Plow
100,000'— ¾" 6x19 HC Plow & Impro. Plow
70,000'— ⅞" 6x19 HC Plow & Impro. Plow
40,000'—1" 6x19 HC Plow & Impro. Plow
30,000'—1⅛" 6x19 HC Plow & Impro. Plow
10,000'—1¼" 6x19 HC Plow & Impro. Plow
50,000'—1½" 6x19 HC Plow & Impro. Plow

500,000' OTHER SIZES IN STOCK

ALSO CARLOADS OF TURNBUCKLE, SHACKLES & WIRE ROPE CLIPS

WIRE ROPE TRADING CO.
562 TENTH AVE. NEW YORK 36, N.Y.
LONGACRE 5-3050-1-2

1 Yd. SHOVEL ATTACHMENT

Complete

For Model 600 P & H

LOUIS ARGENIO, INC.
381 Broadway Newburgh, N. Y.
Phone Newburgh 5102

FOR RENT

2 20 ton Bay City Cranes
1 10 ton Bay City Crane
1 Cleveland Ditching Machine—Model 95
1 ¾ yd. Bay City Crane, Shovel, or Backhoe-diesel
1 TD-14 Bulldozer-angle
1 D-4 Bulldozer-angle
1 10B shovel, crane, or backhoe
2 Gradalls
1 3 wheel 10 ton Roller
1 Jersey Stone Spreader
Front End Loaders—Rubber tired

BUCKS COUNTY CONSTRUCTION CO.
Penndel, Pennsylvania
Langhorne, 3795

RAILS *New and Relaying*

TRACK MATERIALS AND ACCESSORIES CARRIED IN STOCK

SWITCH MATERIAL • SPIKES & BOLTS • TRACK TOOLS • TIES • TIE PLATES • BUMPERS • COMPLETE SIDE TRACKS

TRACK SUPPLIES STRUCTURAL STEEL RAILS

BUILDERS STEEL SUPPLY CO.
4201 WYOMING • P.O. BOX 188 • DEARBORN, MICH.

RAILROAD Cross and Switch TIES

Promptly from adequate stocks

NEW and USED *(as available)*

GILLIS & COMPANY
29 East Madison St. Chicago 2

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK
480 Lexington Ave. New York, N. Y.
Park Bldg. Pittsburgh, Pa.
Reno, Nevada
Carnegie, Pa.

IMMEDIATE SHIPMENT

RAILS NEW RELAYING
SWITCH MATERIAL
ALL TRACK ACCESSORIES

MIDWEST STEEL CORPORATION
502 DRYDEN ST. CHARLESTON 21, W. VA.

SURVEYING
INSPECTING
OPERATING
DRIVING

BRAND NEW
U. S. NAVY
AIR CORPS

NYLON FLIGHT SUITS

Bureau of Aeronautics
For U.S.N. NOA (s)
3927

REGULAR $32.50 VALUE **$10**

PARCEL POST PAID

A cool, lightweight forest green, dustproof coverall for all job and play activities. Has double end full length zipper, 9 spacious pockets, pleated back for ease of action. Easy to wash, drys in less than an hour. Sm., Med. & Lge. sizes in short, med. and long lengths.

Rated Firms Open Account—Others Send Check

J. JACOB SHANNON & CO.
214 N. 22nd St., Phila. 3, Pa.
THE OLDEST EQUIP. HOUSE IN PHILA.

For Sale: USED TRAVELING CRANE

10 Ton Chisholm-Moore double I beam hand operated, complete with runway beams and rails, designed for building 30 ft. by 54 ft. and with 27 ft. 4 in. lift. Available about June 15th.
For further particulars and price:

JOHNSON CITY WATER BOARD
Municipal Building, Johnson City, N. Y.

CATERPILLAR POWER UNITS

Complete assembly; radiator, skid base, housing, clutch and power take-off. 12 are Model D-13000; 6 are Model D-17000. Age approx. 5 years.

$3000 each

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. St. Louis 1, Mo.

FOR SALE

New Wire Rope Blocks

12" Snatch Blocks with Hooks........	$13.50
14" Snatch Blocks with Hooks........	18.50
16" Safety Snatch Blocks with Shackles	20.00
14" Double Blocks with Shackles......	13.00
18" Single 20 Ton with S. Shackle.....	25.00
18" 3-Sheave 30 Ton with Shackle....	50.00
18" 4-Sheave 30 Ton with Shackle....	75.00
#32 Drop Forge Hooks, New..........	2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

ASPHALT & OIL TANKS

IN MO.—TEX.—N. Y.—FLA. & LA.
33—8000 & 10,000 GAL. R. R. TANK CAR TANKS.
6—HORIZ. 15,000 & 20,000 GAL.
9—VERT. 15,000, 42,000, 120,000 GAL.

LESTAN CORP., ROSEMONT, PA.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on following pages

Polk, Powell and Hendon

Engineers—Consultants
Harry H. Hendon
Hugh A. Powell

Water Systems, Sewers and Sewage Treatment Plants, Steam and Hydro Plants, dams, drainage, industrial buildings, municipal planning reports, plans, estimates and construction supervision.

620 Chamber of Commerce Bldg.,
Birmingham 3, Ala.

Palmer and Baker, Inc.

Consulting Engineers - Architects
Naval Architects - Marine Engineers

Surveys-Reports-Design-Supervision
Consultation

Transportation and Traffic Problems
Tunnels-Bridges-Highways-Airports
Industrial Buildings
Waterfront and Harbor Structures
Graving and Floating Dry Docks
Vessels, Boats and Floating Equipment
Complete Soils, Materials and Chemical Laboratories

Mobile, Ala. New Orleans, La.
Washington, D. C. Houston, Texas

John S. Cotton

Consulting Engineer
Hydroelectric, water supply, irrigation, and multiple purpose projects; flood and erosion control; river basin development planning; dams and their foundations; tunnels; marine structures; valuations; rates.
28 Brookside Dr., San Anselmo, Calif.

International Engineering Company, Inc.

ENGINEERS
Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.
San Francisco 5, California.

Heron Engineering Co.

Chemical, Mining, Industrial and Hydraulic Plants, Irrigation, Water Supply. Power and Sewerage Systems, Large Rockfill Dams, Airports, Oil, Gas and Water Pipe Lines.
2000 So. Acoma, Denver 10, Colorado
Chama, New Mexico.

Duval Engineering & Contracting Co.

General Contractors

FOUNDATION BORINGS
For Engineers and Architects.

Jacksonville, Florida

Rader Engineering Co.

Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic; Foundations, Buildings, Reports, Investigations, Consultations.

111 N.E. 2nd Ave., Miami 32, Florida

Law-Barrow-Agee Laboratories, Inc.

Soils Engineers & Consultants
Soil Testing—Soil Boring—Rock Drilling—Load Testing—Field Control—Engineering Studies—Chemical Analysis—Physical Testing
Box 1558 Atlanta 1, Ga.
Serving the entire South

Patchen & Zimmerman

Engineers
Construction Plant, Cofferdams, Structures, Industrial Plants, Dams, Sewerage and Sewage Treatment. Water Supply and Treatment. Supervision. Surveys, Reports.
Augusta, Ga. Anniston, Ala.

Alvord, Burdick & Howson

CONSULTING ENGINEERS

Water Works Sewerage
Water Purification Sewage Treatment
Flood Relief Power Generation
Drainage Appraisals

20 North Wacker Drive, Chicago

A. J. Boynton & Co.

ENGINEERS

Fixed and Movable Bridges
Structures
Foundations

Design
Construction

109 N. Wabash Ave., Chicago 2.

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

De Leuw, Cather & Company

CONSULTING ENGINEERS

Transportation, Public Transit and Traffic Problems

Industrial Plants Grade Separations
Railroads Expressways
Subways Tunnels
Power Plants Municipal Works
150 North Wacker Drive
Chicago 6, Ill.

79 McAllister Street
San Francisco 2, Calif.

Greeley and Hansen

Engineers
Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

Hazelet & Erdal

CONSULTING ENGINEERS
Fixed Bridges, Movable Bridges, Industrial Plants, Expressways, Airports, Dams
Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.

Macdonald Engineering Co.

Foundation Investigations
Soil Analyses Reports

188 West Randolph Street
Chicago 1, Illinois

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials
281 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS
Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Soil Testing Services, Inc.

Theo. W. Van Zelst Carl A. Metz
John P. Gnaedlinger
Soil Borings Rock Coring
Engineering Testing of Soils
Soil & Foundation Reports
4520 W. North Av. Chicago 39

Wight and Company

Consulting Engineers
Airfields — Municipal Improvements
Sewage Disposal — Pavements — Drainage Surveys
1008 Curtiss St. Downers Grove, Ill.

Jenkins, Merchant & Nankivil

Consulting Engineers
Municipal Improvements Sewerage
Power Development Water Systems
Traffic Surveys Industrial Plants
Flood Control Recreational Facilities
Airports Investigations and Reports
805 E. Miller St., Springfield, Ill.

Chas. W. Cole & Son

Sewerage, Sewage Treatment, Industrial Wastes, Water Supply, Water Treatment, Airports, Industrial Buildings.
Chas. W. Cole, Sr. Chas. W. Cole, Jr.
Ralph J. Bushee. M. J. McErlain
220 W. LaSalle, South Bend, Ind.

Stanley Engineering Company, *Consulting Engineers*

Airports - Drainage - Electric Power
Flood Control - Industrial - Rate Studies - Sewerage - Valuations - Water Works
Hershey Building Muscatine, Ia.

Eustis Engineering Company

FOUNDATION AND SOIL MECHANICS INVESTIGATIONS
Soil Borings *Laboratory Tests*
Foundation Analyses *Reports*
3635 Airline Highway
New Orleans 20, La.

Robertson & Associates

Consulting Engineers
Bridges - Structures - Foundations
Industrial Buildings & Facilities
Highway Planning
Investigations - Designs - Reports
Supervision of Construction
Baltimore, Md. Richmond, Va.

Jackson & Moreland

Engineers and Consultants
Design and Supervision of Construction
Reports—Examinations—Appraisals
Machine Design—Technical Publications
Boston New York

Chas. T. Main, Inc.

Engineers
Design and Supervision of
Construction for Industrial Plants
Electrical, Steam and
Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St., Boston, Mass.

Metcalf & Eddy

ENGINEERS
Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

Philip B. Streander and Affiliates

Consulting Sanitary Engineers
Water Supply, Treatment, Distribution
Sewage, Sewage Treatment
Plans, Supervision, Reports
132 Nassau St. New York 7, N. Y.
683 Atlantic Ave. Boston 11, Mass.

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry

Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City, 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City 2, Mo.

1404 E. 9th St., Cleveland, 14, Ohio

Harrington & Cortelyou

Consulting Engineers
Frank M. Cortelyou
E. M. Newman F. M. Cortelyou, Jr.
Movable and Fixed Bridges of All Types, Foundations, and Related Structures.
1004 Baltimore Kansas City 6, Mo.

Russell and Axon

Consulting Engineers
Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations
408 Olive St. St. Louis 2, Mo.
Municipal Airport Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers
Bridges, Structures and Reports, Industrial and Power Plant Engineering.
Syndicate Trust Bldg., St. Louis 1, Mo.
220 Bush St., San Francisco 4, Calif.

William J. Wenzel

Consulting Engineer
Great Falls, Montana
Developing the Great Northwest

Greer & McClelland

Consulting Engineers

FOUNDATION
INVESTIGATIONS

98 Greenwood Ave. Montclair, N. J.
2649 N. Main St. Houston, Texas

Edwards, Kelcey & Beck

Reports, Design Supervision, Expressways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.
3 William Street 250 Park Avenue
Newark 2, N. J. New York 17, N. Y.

Porter, Urquhart & Beavin

O. J. Porter & Co.
Consulting Engineers
Airports-Highways-Dams-Structures
Foundations-Stabilization-Pavements
415 Frelinghuysen Ave., Newark 5 N. J.
76 Ninth Ave., New York 11, N. Y.
3568 West Third St., Los Angeles 5, Calif.
516 Ninth St., Sacramento 14, Calif.

W. W. Slocum & Co.

ENGINEERS
Industrial - Design - Management
National Newark Building
744 Broad St., Newark 2, N. J.

Frank E. Harley and Associates

Consulting Engineers
Design, Surveys, Plans and Construction Highways, Sewerage and Sewage Treatment, Water Supply and Purification, Municipal Problems.
Harley Bldg., 260 Godwin, Wyckoff, N. J.

E. Lee Heidenreich, Jr.

Consulting Engineer
Quarries Plant Loyout
Crushing Plants Design
Milling Plants Appraisals
75 Second Street, 9 So. Clinton St.,
Newburgh, N. Y. Chicago 6, Ill.

Ammann & Whitney

Consulting Engineers
Design — Construction Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Barker & Wheeler

Water Supply Utility and
Sewerage Industrial
Sewage Disposal Valuations
Power Systems Reports
New York City, 11 Park Place
Albany, N. Y. 36 State St.

Clinton L. Bogert Associates

Consulting Engineers
Water and Sewage Works
Refuse Disposal Industrial Wastes
Drainage Flood Control
624 Madison Ave., New York 22, N. Y.

Bowe, Albertson & Associates

Engineers
Water and Sewage Works—Industrial Wastes—Refuse Disposal — Municipal Projects—Airfields—Industrial Buildings — Reports — Designs—Estimates—Valuations—Laboratory Service.
110 William St., New York 7, N. Y.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding and following pages

Brown & Blauvelt

CONSULTING ENGINEERS

Industrial Plants
Bridges, Dams, Airports
Expressways, Parkways, Highways

Preliminary Reports
Engineering Design
Construction Supervision
Material Controls & Testing

Municipal Engineering Services
Tax Maps, Surveying

468 Fourth Ave., New York 16, N. Y.
140 Eighth Street, Pittsburgh, Pa.

Buck, Seifert & Jost

Consulting Engineers

(Formerly Nicholas S. Hill Associates)
Water Supply — Sewage — Hydraulic Developments, Reports and Valuations. Chemical and Biological Laboratories.
New York City, 112 E. 19th St.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street New York
209 S. LaSalle Street Chic. 4, Ill.
1604 K Street, N.W. Wash. D. C.

Fay, Spofford & Thorndike

Engineers

Charles M. Spofford Ralph W. Horne
John Ayer William L. Hyland
Bion A. Bowman Frank L. Lincoln
Carroll A. Farwell Howard J. Williams

Bridges and Industrial Plants
Water Supply and Sewerage Works
Port and Terminal Works Airports

Valuations, Investigations, Designs, Supervision of Construction.

11 Beacon St., Boston, Mass.
420 Lexington Ave., N. Y.
(Graybar Bldg.)

Freyssinet Company, Inc.

Prestressed concrete structures:

Industrial Buildings
Bridges
Waterfront & Harbor Structures
Storage Tanks
Underpinnings

Estimates, tests, reports, design and supervision

57 William Street, New York 5, N. Y.

Hardesty & Hanover

Consulting Engineers

Successors to Waddell & Hardesty

Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations

Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS

F. H. Dechant, E. J. Quirin,
E. H. Harlow

Harbors, Piers & Bulkheads, Drydocks.
Foundations, Soil Mechanics.
Sanitary & Industrial Waste Disposal.
Water Supply, Flood Control.
Airports, Highways, Bridges.
Power, Industrial Plants, Buildings

27 William Street New York
3 William Street Newark
Fidelity Phila. Trust Bldg. Philadelphia

Hazen & Sawyer

Engineers

Richard Hazen Alfred W. Sawyer
Water and Sewage Works,
Industrial Waste Disposal,
Drainage
Reports, Design, Supervision
of Construction and Operation
110 East 42nd St., New York 17, N. Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers

Bridges and Structures

New York, N. Y., 55 Liberty St.
Kansas City, Mo., 921 Walnut St.

Knappen-Tippetts-Abbett-McCarthy

Engineers

Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Moran, Proctor Mueser & Rutledge

Consulting Engineers

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

New York 17, N. Y. 420 Lexington Ave.

PARDO, PROCTOR, FREEMAN & MUESER
Ap. Correos 614 Caracas, Venezuela

Parsons, Brinckerhoff Hall & Macdonald

ENGINEERS

Airports, Bridges, Tunnels, Highways, Traffic and Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Power Developments, Industrial Buildings, Dams, Sewerage, Water Supply.

51 Broadway, New York 6, N. Y.

Malcolm Pirnie Engineers

Civil & Sanitary Engineers

Malcolm Pirnie Ernest W. Whitlock
Robert D. Mitchell Carl A. Arenander
Malcolm Pirnie, Jr.

Investigations, Reports, Plans
Supervision of Construction
and Operations.

Appraisals and Rates
25 W. 43rd St., New York 36, N. Y.

The Pitometer Company

Engineers

Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special Hydraulic Investigations
New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett-Stanley N. Williams
Consulting Sanitary Engineers
Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals
30 Church Street, New York 7

Sanderson & Porter

Engineers and Constructors

New York ● Chicago ● San Francisco

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Seelye Stevenson Value & Knecht

Consulting Engineers

MANUFACTURING PLANTS
Plans, Specifications, Field Supervision, Reports, Valuation.
HEAVY ENGINEERING
Airports, Paving, Bridges, Stadia, Dams, Water Supply, Sanitation, Tunnels, Piers, Harbors, Industrial Waste Disposal.
STRUCTURAL
Skeleton Buildings, Foundations, Soil Studies, Concrete Control, Underpinning.
MECHANICAL - ELECTRICAL
Steam and Electric Generating Plants, Heating, Air-Conditioning, Refrigeration.
101 Park Ave. New York 17, N. Y.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Singstad & Baillie

Consulting Engineers

Ole Singstad David G. Baillie, Jr.
Tunnels, Subways, Highways
Foundations, Parking Garages

24 State St. New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.
Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7

Havana, Cuba Lima, Peru
Bogota, Colombia, Caracas, Venezuela,
San Juan, Puerto Rico, Guayaquil,
Ecuador.

D. B. Steinman

Consulting Engineer

BRIDGES
Design, Construction
Strengthening, Investigations,
Reports, Advisory Service

117 Liberty St., New York 3, N. Y.

Taylor, Henry W.

Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Wastes Disposal
Hydraulic Developments

11 Park Place, New York City

The J. G. White Engineering Corporation

Design—Construction
Reports—Appraisals

80 Broad Street, New York 4

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings.
Troy, N. Y. Ft. Lauderdale, Fla.

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories
Reports and Plant Location Surveys

New York CLEVELAND Los Angeles
Chicago Houston Oakland
Detroit Seattle

Havens and Emerson

W. L. Havens C. A. Emerson
A. A. Burger F. C. Tolles F. W. Jones
W. L. Leach H. H. Moseley J. W. Avery
CONSULTING ENGINEERS
Water, Sewerage, Garbage, Industrial Wastes, Valuations—Laboratories
Leader Bldg. Woolworth Bldg.
Cleveland 14 New York 7

Auferoth and Fanning

Consulting Engineers and Architectural Services

Design—Construction Supervision
Buildings, Industrial Plants
Special Structures and Foundations
Indiana, Ohio, and Michigan
1005 N. Sugar St., Celina, Ohio

Burgess & Niple

Civil and Sanitary Engineers
Consultants since 1908
Water supply, treatment and distribution. Sewage and industrial wastes disposal Investigations, reports, appraisals, rates Plant operation, laboratory, plans and specifications.
584 E. Broad St. Columbus 15, Ohio

Jones, Henry & Williams

(formerly Jones, Henry & Schoonmaker)
Consulting Sanitary Engineers
Water Works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Concrete — Soils — Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory

1810 North 12th St. Toledo 2, Ohio

Benham Engineering Co.

Established in 1909
Design and Construction Engineering Services for Water and Sewage—Highways and Structures—Airports—Power and Heating Plants
Suite 550 American National Building
Oklahoma City, Oklahoma

Loedding Engineering Co., Inc.

Consulting, Design and Detail
Industrial and Commercial Planning
Bridges, Structures of All Types
Material Handling, Conveyors
Gantry, Overhead and Jib Cranes
Reinforced Concrete and Foundations
Industrial Piping and Ventilation
Economy Bank Bldg Ambridge, Penna.

QUICK solutions to your technical problems are available through these consultants. Think first of the Professional Services Section of your publication when considering calling in an expert.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names • Additional cards on preceding pages

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges Dams
Planning Airports
Sewage Systems Water Works
Design and Surveys Roads & Streets
Executive Offices Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.

ENGINEERS

Dams, Water Works, Sewage, Industrial Wastes & Garbage Disposal. Highways, Bridges & Airports, Traffic & Parking—Appraisals, Investigations & Reports.

Harrisburg, Penna.

Branch Offices

Pittsburgh, Pa. Philadelphia, Pa.
Daytona Beach, Fla. Pleasantville, N. J.

Modjeski and Masters

Consulting Engineers

Design, Supervision, Reports, Inspection and Investigations, of Bridges, Structures, and Foundations.

State Street Bldg. 33rd and Arch Sts.
Harrisburg, Pa. Philadelphia 4, Pa

Aero Service Corporation

Photogrammetric Engineers

Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models

236 E. Courtland St.
Philadelphia 20, Pa.

Albright & Friel, Inc.

Consulting Engineers

Water, Sewage and Industrial Wastes Problems, Airfields, Refuse Incinerators, Dams, Power Plants, Flood Control, Industrial Buildings, City Planning, Reports, Appraisals and Rates, Laboratory.

121 So. Broad St., Philadelphia 7, Pa.

Day & Zimmerman, Inc.

Engineers

Designs, Construction, Valuations
Reports and Management
Public Utilities and Industrials

New York Philadelphia Chicago

Frederick H. Dechant

Consulting Engineer

Chairman of the Board .
Frederic R. Harris Inc.

Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants

Philadelphia: Fidelity Phila. Trust Bldg. New York: 27 William St.

Fridy - Gauker - Truscott & Fridy

Architects & Engineers

Water Sewerage . Industrial Waste Incineration . Power & Distribution Airport . Building . Town Planning

1321 Arch Street . Philadelphia 7, Pa.

G. G. Greulich

Consulting Engineer

Investigations, Reports, Advice. Pile Foundations, Sheet Piling, Cofferdams, Bulkheads, Piers, Bridge Decks, Bank Vaults.

1346 Connecticut NW 778 Osage Rd.
Washington 6, D. C. Pittsburgh, Pa.

Hunting, Larsen & Dunnells, *Engineers*

Industrial Plants—Warehouses, Office and Commercial Buildings. Steel and Reinforced Concrete. Design and Supervision. Reports.

1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles Inc.

Engineers

Water Supply and Purification Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.

Pittsburgh, Pa.

Peter F. Loftus Corporation

Engineering and Architectural Consultants and Designers

First National Bank Bldg.,
Pittsburgh 22, Pennsylvania

Cable Address—
"LOFTUS Pittsburgh"

Gilbert Associates, Inc.

Engineers • Consultants • Constructors

Reading, Pa.

Utilities • Industrials • Municipals

Power • Water • Sewerage

New York • Philadelphia • Washington
Rome • Manila • Medellin

Michael Baker, Jr., Inc.

The BAKER ENGINEERS, Civil Engineers, Planners, and Surveyors. Municipal Engineers, Airport Design, Highway Design, Sewage Disposal systems, Water Works Design and Operation, City Planners, All Surveys. Home Office: Rochester, Pa., Branch Offices: Jackson, Miss., Harrisburg, Pa.

Weigle Engineering Co.

CIVIL ENGINEERS

William E. Weigle Robert E. Weigle
Robert A. Meckley

Sewers, Bridges, Airports, Municipal Work
Design and Construction Supervision
Estimates and Flood Control

30 N. Duke St., York, Pa.

Atlas Engineering Corporation

Architects-Engineers
Designers-Consultants

Knoxville - Clinton - Oak Ridge
Tennessee

Lockwood & Andrews

Consulting Engineers

Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations,
Reports — Design — Supervision

Union Nat'l Bank Bldg., Houston, Tex.

C. W. Riva Co.

Engineers Edgar P. Snow

Highways, Bridges, Tunnels, Airports, Foundations, Sewerage, Water Supply, Reports, Design and Supervision.

511 Westminster St., Prov. 3, R. I.

Preload Engineers Inc.

Consultants in Prestressed Design

Bridges—Bldgs.—Marine Structures
Tunnels—Pavements—Tanks—Pipe

Investigations—Reports
Plans and Specifications
Construction Supervision

955 N. Monroe St., Arlington, Virginia

Hutchings & Milani, Ltd.

Engineers & Constructors

Industrial - Roads - Power Plants - Dams - Tunnels - Harbor Works - Foundations - Hotels

CARIBBEAN - WEST INDIES - SOUTH AMERICA
BERMUDA-CARIBBEAN CONSULTANTS, LTD.
Architects & Engineers.

Design - Reports - Investigations

L. C. Milani, ASCE; C. W. Abbott, R.I.B.A.; N. J. Seneeey, A.I.A.; P. Coller; T. F. Carr, H. J. Williams; S. H. Pace; W. Weir.

BOTH HEAD OFFICES AT HAMILTON, BERMUDA.

Atlantic, Gulf and Pacific Company of Manila

Engineers
Design - Construction
Inquiries invited for work in the Philippines and Far East.
P. O. Box 626, Manila, Philippines
Cable Address: DREDGING Manila

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

The Foundation Engineering Company of Puerto Rico

Consulting Engineers

Foundation and Soil Mechanics Investigations, Laboratory analyses, reports and recommendations, design of structures, Supervision.

P. O. Box 821, San Juan, Puerto Rico

Inspecting and Testing

Robert W. Hunt Company

Inspection and Tests of Engineering Materials and Equipment.

General Offices and Laboratories
175 West Jackson Blvd., Chicago 4
All Principal Cities

Johnson Soils Engineering Laboratory

Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.

193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

The Haller Testing Laboratories, Inc.

Testing and Inspection of Construction Materials

Complete Soils Laboratory

Load Tests—Soils & Structures

Concrete and Bituminous Materials

301 2nd Ave., New York 17, N. Y.
Plainfield, N. J. New Haven, Conn.
Boston, Mass.

Marine Diving

Walter Detrick

Marine Diver

Construction • Repair • Salvage
Quincy, Illinois
9006 Phones 750

John I. Tooker, Jr.

Marine Diver

Pipe Lines, Blasting, Inspections Burning, Salvage and Construction.
Will Travel

14 Kell Ave., Staten Island 14, N. Y.
Phone—Saint George 7-0482.

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

Aberthaw Co., The 98
Air Compressor Rental Co 94
Albert Pipe Supply Co., Inc 97
Albrecht Co., E. J 95
American Air Compressor Corp 97
Amerlux Steel Products Corp 96
Argenio Inc., Louis 98

Bucks County Construction Co 98
Builders Steel Supply Co 98

Civil Service Commission 93
Clauss & Sons, Felix 97
Clemens Construction Co 96
Concrete Equipment Co 94
Contractors Machinery Co 96

Davidson Pipe Co., Inc 97
Deatherage Son, George E 93
Diesel Motors Co 94
Drachman Steel Co., Hy 98

Ehrbar, Inc., Edward 97

Forke Bros. 94
Foster Co., L. B 96
Frank, M. K 98
Frazier-Davis Construction Co....95, 98
Furnival Machinery Co 95

Gillis & Co 98
Globe Pipe & Fitting Co 97
Gurley, W. & L. E 94

Hayes, Seay, Mattern & Mattern 93
Houston, City of 97

Iowa State Highway Commission 93

Johnson City Water Board 98

Keystone Construction Co 95

Lee & Co 94
Lestan 98

McMahon, J. E 93
McKee & Co., Arthur 92
Merritt-Savin 94
Midwest Steel Corp 98

Mississippi Valley Equipment Co. 94, 96, 98

O'Neill, A. J 96
Orban Co., Inc., Kurt 96

Phillips & Davies Inc 92
Powers & Co 96

Reading Inc., Eugene P 95

Shannon & Co., J. Jacob 98
Stanhope Inc., R. C 96
State Personnel Board, Sacramento, Calif. 92

Tagco 97
Tractor & Equipment Co 97

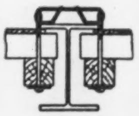
Union Standard Supply Co 96

Wikstrom Inc., A. S 97
Williams Construction Co 97
Wilson Engineering Co 93
Wing & Son, R. B 94
Wire Rope Trading Co 98

SUPERIOR ACCESSORIES ON THE BEAM

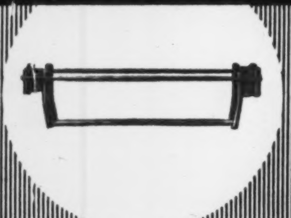
Designed to meet field conditions on BRIDGE SUPERSTRUCTURES, these three types of Hangers provide efficient means for hanging forms from steel beams and girders, not fireproofed.

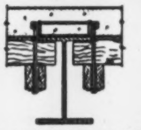
STANDARD COIL HANGER FRAME



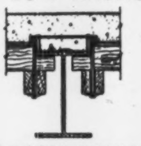
When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 4,500 lbs., or 2,250 lbs. per bolt.

SPECIAL COIL HANGER FRAME





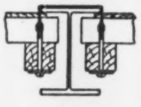
AT LOW HAUNCH



AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to efficiently meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

COIL BEAM SADDLE

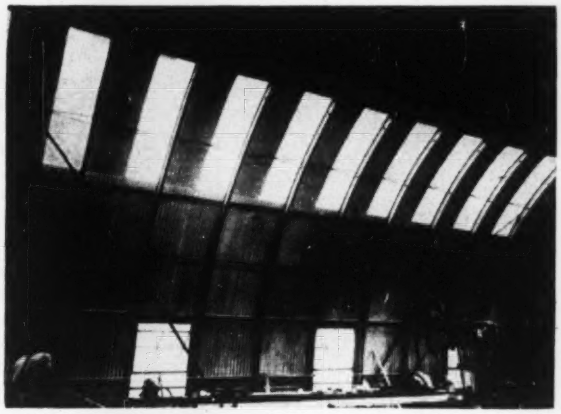


Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

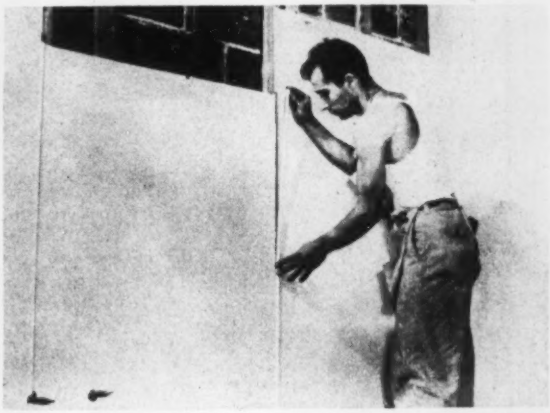
NOTE: WORKING PARTS (Bolts and Washers) are returnable. Layouts and estimates for Superior Hangers are available without cost or obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.
4110 Wrightwood Avenue, Chicago 39, Illinois
New York Office, 1775 Broadway, New York 19, N. Y.
Pacific Coast Plant, 2100 Williams St., San Leandro, Calif.

FOR ADDITIONAL INFORMATION . . .
Request A Copy Of
4-PAGE
BULLETIN FH-2



DAYLIGHT INDOORS—even in large industrial plants—is made possible by glass fiber reinforced plastic panels. Made of glass fiber polyester, they are light in weight and shatterproof.



MATCHING MOLDING STRIP is attached to laminated plastic wall board. Strip holds paneling in place without the use of adhesives and paneling requires no backing material.

PLASTICS: New materials not replacements

Misused, misnamed and maligned, plastics still show steady gains as construction materials

S. C. Jensen
Assistant Editor

Plastics is not a single material but—like alloy steel—comprises a whole list of materials. Basically, they are a group of chemical compounds developed for particular individual qualities and therefore are designed for particular uses.

The list of plastics available is as long as it is confusing. Its nomenclature contains some of the most unpronounceable combinations of chemical terms to be found anywhere.

For construction men, this vast array of materials and names can be reduced to perhaps a dozen and a half—and even that number represents too wide a variation in characteristics and uses for detailed individual discussion. But, general properties of these relatively few materials can be discussed from the viewpoint of what they will do or can stand—and that's what's done in the following paragraphs.

Meanwhile, there's one general rule about plastics that's worth posting in a prominent place by any construction man:

The proper plastic must be selected for the individual application in which it is to be used. There is very little of the "oh well, it'll do" school of practice that can be applied to this field safely.

With this in mind, then, here's a partial list of the plastics that seem most applicable to construction—and some facts about them:

- **Tensile strength**—Polyster glass fiber is the strongest of the plastic materials, with a rating of 41,000 psi—just about in the range of steel. This strength is due, however, to the glass fiber reinforcement rather than to the plastic itself.

Of the non-reinforced plastics, nylon has considerable tensile strength but all other plastics are below 10,000 psi with polyethylene (polythene) low at 1,100 psi. Notwithstanding, where low stresses exist, piping and structures of sheeting can be made from plastics with entirely satisfactory results.

Representative Plastics

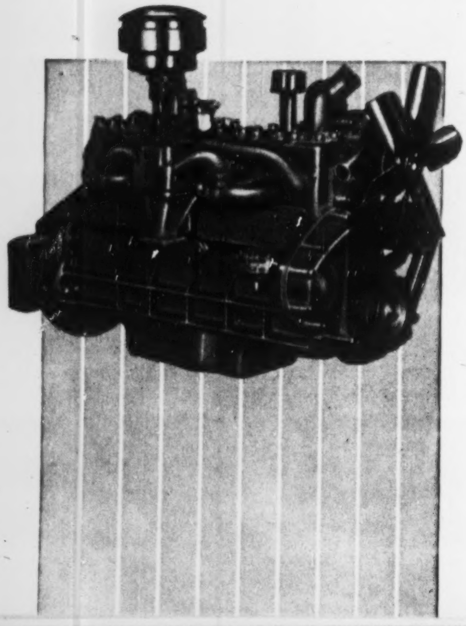
Tetrafluoroethylene resin (Teflon)
Polychloro-trifluoroethylene (KEL-F)
Polyester glass fiber
Polyninylidene chloride (Saran)
Haveg 41 phenolic
Haveg 60 furane
Elastomers (Neoprene)
Polyvinyl chloride rigid (PVC)
Polyvinyl chloride elasticized (PVC)
Hard rubber
Lucite Acrylic
Nylon
Chlorosulfonated polyethylene (Hypalon)
Cellulose acetate-butyrate
Buna N-Buna S
Polystyrene (Styron)
Polyethlylene (Polythene)

- **Elongation**—Plastics generally rate fairly high in their capacity to take deformation in strain. Materials such as plasticized polyvinyl chloride (PVC) and elastomers such as Neoprene show outstanding elongation before failure just as natural rubber would. But polyethylene (polythene) is also capable of considerable deformation before failure. It should be noted, however, that some resins fail in tension with almost no deformation.
- **Impact strength**—As in the case of tensile strength, the polyester glass fiber is outstanding, but tetrafluoroethylene resin (TFE resin or Teflon), polychloro-trifluoroethylene (KEL-F) and cellulose acetate-butyrate (Tenite) are also good.
- **Service temperature**—This is the maximum temperature that a plastic can withstand over an extended period of time. It is very likely that use of plastics will be extended considerably when the maximum is raised. At present, Teflon probably has the best service temperature—150 deg. C.
- **Specific gravity**—Polyethylene (Polythene) is the lightest of the plastics with a specific gravity of 0.9. Teflon is the heavyweight at 2.3.
- **Flexural fatigue**—As with metals, it is important to design plastic structures within the endurance limit and not be guided by tensile strength

EASIEST
WAY OUT OF
A RUT

Photo Courtesy Gar Wood Industries, Inc., Findlay Division, Findlay, Ohio

Pedigreed Horsepower digs ditch, carries dirt away, moves ditcher!



Without ever moving from his seat, this operator can dig a ditch eight feet deep and up to twenty-four inches wide. With an individually controlled clutch and brake for each crawler, he can dig straight as an arrow or curved as nicely as you please. With positive-pressure hydraulic controls holding the boom at the desired depth, he can easily undercut pipes or other obstructions, dig right up to foundations. Forward or reverse, the operator can select from a large number of digging speeds . . . going forward, he can dig up to nineteen feet per minute.

The plain fact is, this operator has it pretty good . . . the simplified controls of his Buckeye General Utility Ditcher and the Model 8 Chrysler Industrial Engine powering excavator, dirt conveyor and traction members were practically *made for each other*. For this manufacturer, like others, selects his Chrysler Engines equipped to meet his needs. Standard or gýrol Fluid Coupling, Torque Converter, standard or special dust-resistant air cleaner, gasoline, propane or natural-gas burning carburetors, fungus-treated or corrosion-resistant electrical systems, all of these were among the optional equipment available for his selection.

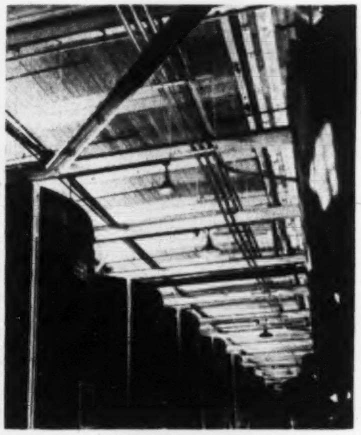
Chrysler Industrial Power is not expensive. Production-line methods adapted to specialized industrial engine building provide a custom-built engine at mass production prices.

See a Chrysler Industrial Engine Dealer for your needs, or write us direct: **Department 75, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.**

CHRYSLER

Industrial Engines

HORSEPOWER **WITH A PEDIGREE**



PLASTIC PIPELINES of cellulose acetate-butyrate (tenite) have been carrying wine and vermouth in this Hartford, Conn., winery for the last eight years with no apparent damaging effect.

alone. Below an endurance limit of 1,000 psi Teflon can be flexed indefinitely. In actual experience, well-fabricated structures of tetra fluoroethylene resin (Teflon) show outstanding flex durability.

• **Water absorption**—Plastics are generally good electrical insulators, but polyethylene, Teflon and KEL-F absorb the least water of the construction plastics. Moisture content also affects mechanical strength, moldability and dimensional stability.

• **Plastics at present**—It is almost impossible to estimate the value of plastics currently used in construction but at least $40-million worth are going into structural applications. Plastic items used by construction men as tools or parts of tools, although seemingly inconsequential individually, make up another large factor in the uses of plastics in construction.

One of the major uses of structural plastics today is in plastic pipe (see ENR May 7, 1953, p. 37). Although certain misapplications have resulted in adverse publicity for many products of this nature, singular success has been achieved by using plastic pipe in industrial construction where corrosive liquids had taken a huge toll on traditional materials. Its manifold advantages of light weight, relatively low cost, ease of installation, corrosion resistance and the high standards imposed by reputable fabricators make plastic pipe one of the items to watch and make use of in future construction.

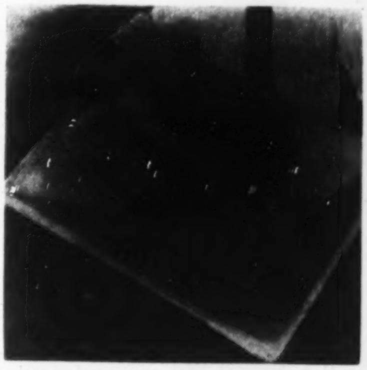
Use of glass fiber reinforced polyesters has expanded considerably during the last few years because of its high strength to weight ratio. Used as a glazing material reinforced polester sheeting diffuses direct sunlight to eliminate glare. As interior paneling, reinforced polyesters are used to add color that requires no protective maintenance and affords good acoustical qualities at the same time.

The use of plastic wall tiles has been on the upswing since 1947. Although they were first made in the early 1940's, a suitable mastic adhesive was not developed until the latter date. Oil based mastics successfully used with metal tile would bond to wall surfaces but would not bond to the plastic tile. Improved mastic materials and opacity ratings for the tile together with raised heat distortion points has since then permitted wide use of this type of building product—more than 100,000,000 sq ft in 1952. (This compares with 148,000,000 sq ft of ceramic tile sold in 1951—a record year for the age-old industry.)

Laminated plastics have been used quite successfully in interiors where a bright, easy-to-clean surface is desirable. Laminated plastic counter tops and sink splash boards have been built into houses throughout the United States but notably in two 1,000-home developments built by the Hutchinson and Carey Realty Co. of Denver, Colo., and Normac, Inc. of Huntington Park, Calif.

Plastic-faced wall and ceiling panels have been used to a great extent because of their moisture-proof and therefore warp-resistant characteristics.

Aluminum sheets between coatings of melamine plastic are used where fire and heat resistance is particularly desirable. The melamine coating is fire resistant and the aluminum sheet-



PLASTIC MORTAR PAN weighs only four pounds instead of the usual 18 lbs for steel pans.

PRESTRESSED CONCRETE STRUCTURES

A wealth of design data on prestressed concrete—with pointers on when and where to use it. Discusses steel and concrete, their types, and behavior when combined into prestressed members. Shows every step in prestressed concrete design—the problem itself, reckoning dead and live load, working all equations. Many detailed examples show how prestressed concrete was used in actual structures. **By August E. Komendant, Consulting Engineer. 261 pp., 153 illus., $6.00**

BUCKLING STRENGTH of METAL STRUCTURES

Gives dependable data on the behavior of fabricated steel structures under compression loading. Especially applicable in structural and ship design. Covers a wide range of subjects from the buckling of centrally or eccentrically loaded girders to special problems in ship-plating design. Presents many simplified approximate formulas for the first time; treats many new developments, such as those in the field of inelastic stability. Supplies useful methods of analysis based on study of all available data on the subject. **By Frederich Bleich, Late Consulting Eng'r. 508 pp., 263 illus., $11.00**

STATICALLY INDETERMINATE STRUCTURES

Just Published!

Simnly and in detail, this book covers the methods of finding deflections of statically indeterminate beams, rigid frames and trusses, the analysis of statically indeterminate structures by the method of consistent deformation, by the three-moment equation, by the slope deflection and moment distribution methods, and by the method of column analogy. **By C. K. Wang, Assoc. Prof. of Civil Eng., Univ. of Colo. 436 pp., 493 illus., $7.50**

LIVING MATHEMATICS

Written in a light style, with detailed explanations, this is just the book for those who never got beyond arithmetic and now wish an introduction to more advanced mathematics in convenient self-study form, and for those whose acquaintance with algrebra or trigonometry is slight and who wish to review and then proceed to calculus and number theory. **By Ralph S. Underwood and Fred W. Sparks, Professors of Mathematics, Texas Technological College. Second Edition, 336 pp., 88 illus., $5.50**

• SEE THESE BOOKS 10 DAYS FREE •

McGraw-Hill Book Co., Inc., 330 W. 42 St., NYC 36

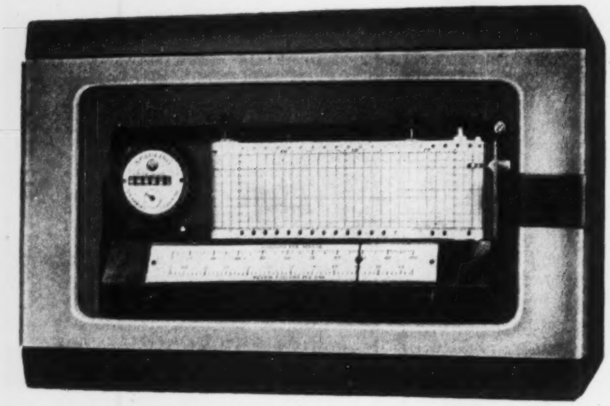
Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep plus few cents for delivery, and return unwanted book(s) postpaid. (We pay for delivery if you remit with coupon; same return privilege.)

☐ **Komendant—PRESTRESSED CONC. STRUCT. $6.00**
☐ **Bleich—BUCKLING STRENGTH—$11.00**
☐ **Wang—STAT. INDETERM. STRUCT.—$7.50**
☐ **Underwood—LIVING MATHEMATICS—$5.50**

(Print)
Name ....
Address ....
City ....Zone.....State.......
Company ....
Position ENR-5-28

This offer applies to U. S. only.

SPARLING MAIN-LINE METERS



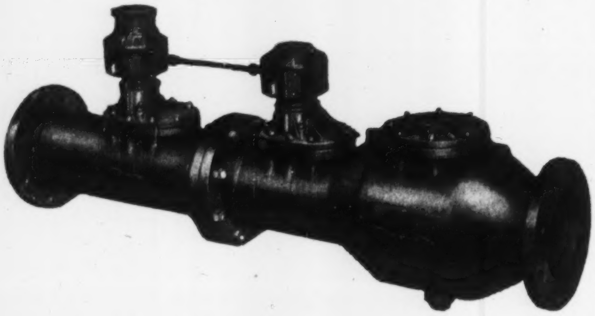
RECORDERS, 60-Day
RECORDERS, 24-Hour
RECORDERS, 7-Day
INDICATORS
TOTALIZERS, Remote

BATCH CONTROLS

CONTROLS for
Auto-Metered
Feeds . . . .

When Flows Vary Widely

Here is a pair that's hard to beat . . . . a Sparling Compound Meter on the main-line for totalization accurate within 2 per cent over a wide range of flows, and a remote control Indicator-Totalizer-Recorder that covers from 3% to 100% of the flow range!



Quotations and
Bulletin 313
come at your
request

SPARLING METER COMPANY
INCORPORATED

LOS ANGELES 54 .... Box 3277
CHICAGO 8 .... 1500 South Western Avenue
SEATTLE 1 .... 1932 First Avenue
NEW YORK 17 .... 101 Park Avenue
626 Broadway .... CINCINNATI 2
6 Beacon Street .... BOSTON 8
726 Reserve Loan Life Bldg .... DALLAS 1
66 Luckie St., N.W. .... ATLANTA 3
KANSAS CITY 6 .... 6 E. Eleventh Street

PHOENIX BRIDGE
COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office
and Shops
PHOENIXVILLE, PA.
Subsidiary—Barium Steel Corporation

GUNITE
Since 1915
CONCRETE
SAND AND CEMENT
"Placed by Air"
38 YEARS OF EXPERIENCE PLUS—
Hundreds of nationally known clients is evidence of our engineering and construction ability to produce "Gunite" concrete construction at a lower overall cost.
Send for specifications and bulletins—no obligation.
See our catalog in Sweets
GUNITE CONCRETE & CONST. CO.
ENGINEERS — CONTRACTORS
1301 WOODSWETHER RD., KANSAS CITY, MO
CHICAGO — ST. LOUIS — MINNEAPOLIS
DENVER — HOUSTON — NEW ORLEANS

ing, being an excellent thermal conductor, disperses heat readily.

Probably the oldest use of plastics in construction is as adhesives and binders. Waterproof plywood and laminated timber structures are the two major uses of these materials.

- **Plastics in the past**—During World War II, critical shortages of metals forced the development of plastics as substitute materials. Admittedly the plastics industry received a tremendous impetus from this move, but consumer acceptance of the materials themselves suffered in the process. When the war ended, metals returned to their former place and plastics became the "cheap, wartime substitute" in a market that demanded prewar quality.

Although consumer acceptance of plastics temporarily foundered, industrial applications of the new materials increased above wartime levels. Today and in the very near future the major part of plastics used in construction will go into these applications. There are a number of things, however, that the plastics industry might do to improve their future.

- **Plastics future**—Expanded acceptance of plastics as structural materials will depend on a number of factors besides an obvious and ever-present need for reduction in costs.

Research and testing of plastic materials to provide engineers and architects with adequate specifications has long been in process. When this work is completed much of the confusion and distrust surrounding plastics construction materials will have been removed.

There are several serious retardants to this program, however. Endurance testing of any material is a long-term operation, and most plastics are so new that complete test results will not be published for several years. The large variety of these materials is also a serious deterrent to setting up a full set of standards. Further, in such a highly competitive industry, the formulation of some plastics compounds are kept a trade secret.

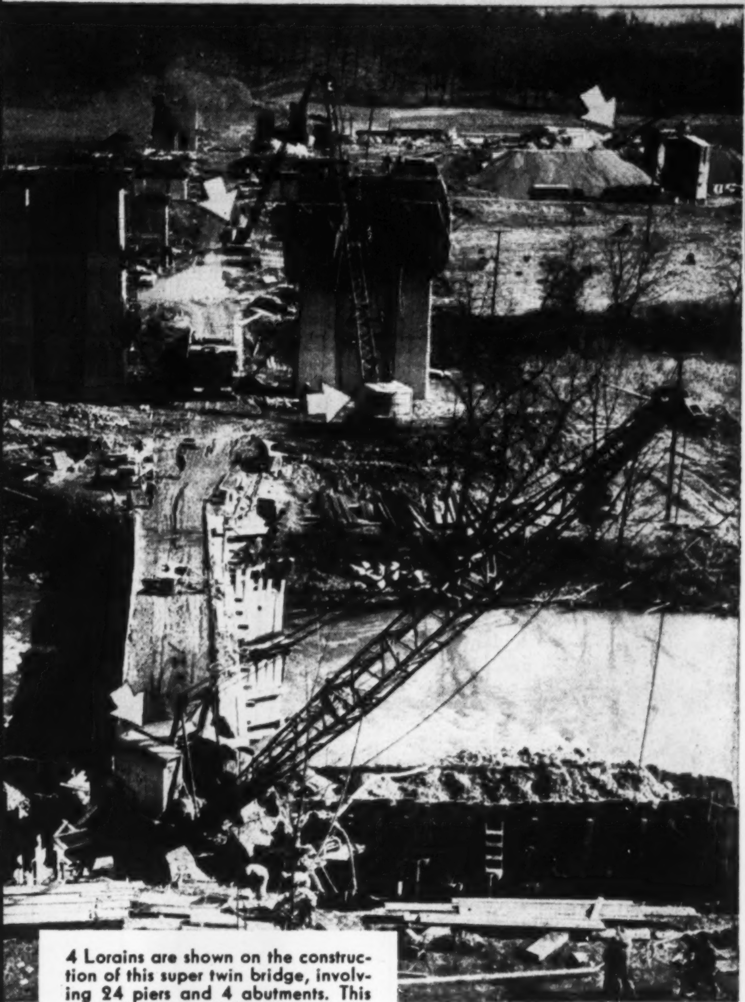
The relatively small size of fabricated plastic parts is also a serious drawback to widespread acceptance. Increase in the size of molding and extrusion machinery is necessary before these materials can become competitive with other materials.

Extension of the uses of plastics in construction must be preceded by an educational program designed to familiarize both the general public and

LORAINS BREAK GROUND ON New Ohio Turnpike

241 MILE TOLL ROAD ACROSS OHIO TO COST $326,000,000

The new Ohio Turnpike got its start at these ground-breaking ceremonies near Peninsula, Ohio, on October 27. A 20-ton Lorain Moto-Crane, Model MC-414, owned by Horvitz Construction Co, of Cleveland, digs the initial footing for a $1,165,000 twin bridge, 2700 ft. long, to cross the Cuyahoga River Valley.



4 Lorains are shown on the construction of this super twin bridge, involving 24 piers and 4 abutments. This job is due south of Cleveland, at the point indicated on the map above.

One of the new 30-ton Lorain Moto-Cranes, Model MC-524, with an 80-ft. boom, handles concrete forms for one of the bridge piers.

Another link in the cross-country "dream highway" gets underway. Construction begins on the newest of state toll roads . . . the new 241 mile Ohio Turnpike that will join the now famous Pennsylvania Turnpike and cross Ohio to the Indiana line. Men and machines have moved in. As might be expected, every conceivable type of construction will be involved — from the heavy rock cuts to the giant bridge structures.

4 LORAINS MOVE IN EARLY ON OHIO TURNPIKE CONSTRUCTION

Horvitz Construction Co. of Cleveland, Ohio, moved in 4 of the 16 Lorains they have purchased to date . . . two big 2-yd. Lorain-820's and two fast-stepping Lorain Moto-Cranes. You are almost certain to see Lorains on big jobs like these. Big jobs, big names — and Thew-Lorains go together. The wide selection in the Lorain line fits every kind of construction project — from the smallest to the largest. And the men that bid the big jobs know they can count on Lorain quality to help them beat tough deadlines — and costs — and come out on top. Your Thew-Lorain Distributor can give you many reasons why you should bid your jobs on the basis of Lorain performance.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW
LORAIN®
THE MOST PREFERRED NAME ON THE BIGGEST JOBS

WELLMAN *Williams Type*

PERFORATED DRAGLINE BUCKET

speeds the wet jobs

● You get big loads fast with this Wellman Perforated Dragline Bucket because excess water goes out while gravel stays in on jobs such as illustrated.

Built of special alloy steel—all welded for strength plus light weight. You can work faster with less maintenance with Wellman dragline buckets.

Want Facts?
Write for free descriptive bulletins.

Dragline, Clamshell, Custom-Built Buckets, Stone and Wood Grabs.

THE WELLMAN
ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

Would you use 1925 construction equipment today? No. Why not change over and equip your jobs with modern office trailers and cut costs.

CONTRACTORS' OFFICE TRAILER

Models 24'—28'—35' Price $2100. to $3500.

Birch finish, drafting table, 2 built-in desks with letter files & drawers, other conveniences. Can offer three year finance plan. Write for pictures and plans.

TRAILER VILLAGE SALES, INC.
8642 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

The BELMONT
IRON WORKS

Engineers — Fabricators — Erectors
Contractors — Exporters
Cable address—Beliron
STRUCTURAL STEEL
BUILDINGS & BRIDGES
RIVETED — ARC WELDED
Shops: Eddystone, Pa.—Philadelphia, Pa.
Royersford, Pa.

Main Office
22nd St. &
Washington Ave.
Philadelphia
46, Pa.

AISC

New York Office
44 Whitehall St.,
N. Y. 4, N. Y.

the construction industry with not only the advantages but also with the proper applications of plastics currently available. Misapplications should be avoided at all costs.

One of the leading institutions carrying on educational work of this type is the Society of Plastics Industries, Inc., 67 W. 44th St., New York.

It is quite likely that plastics will become a major construction material. Advanced processing techniques and new resin discoveries are constantly pushing upward the strength of plastics. Wider use and better manufacturing techniques will cut costs.

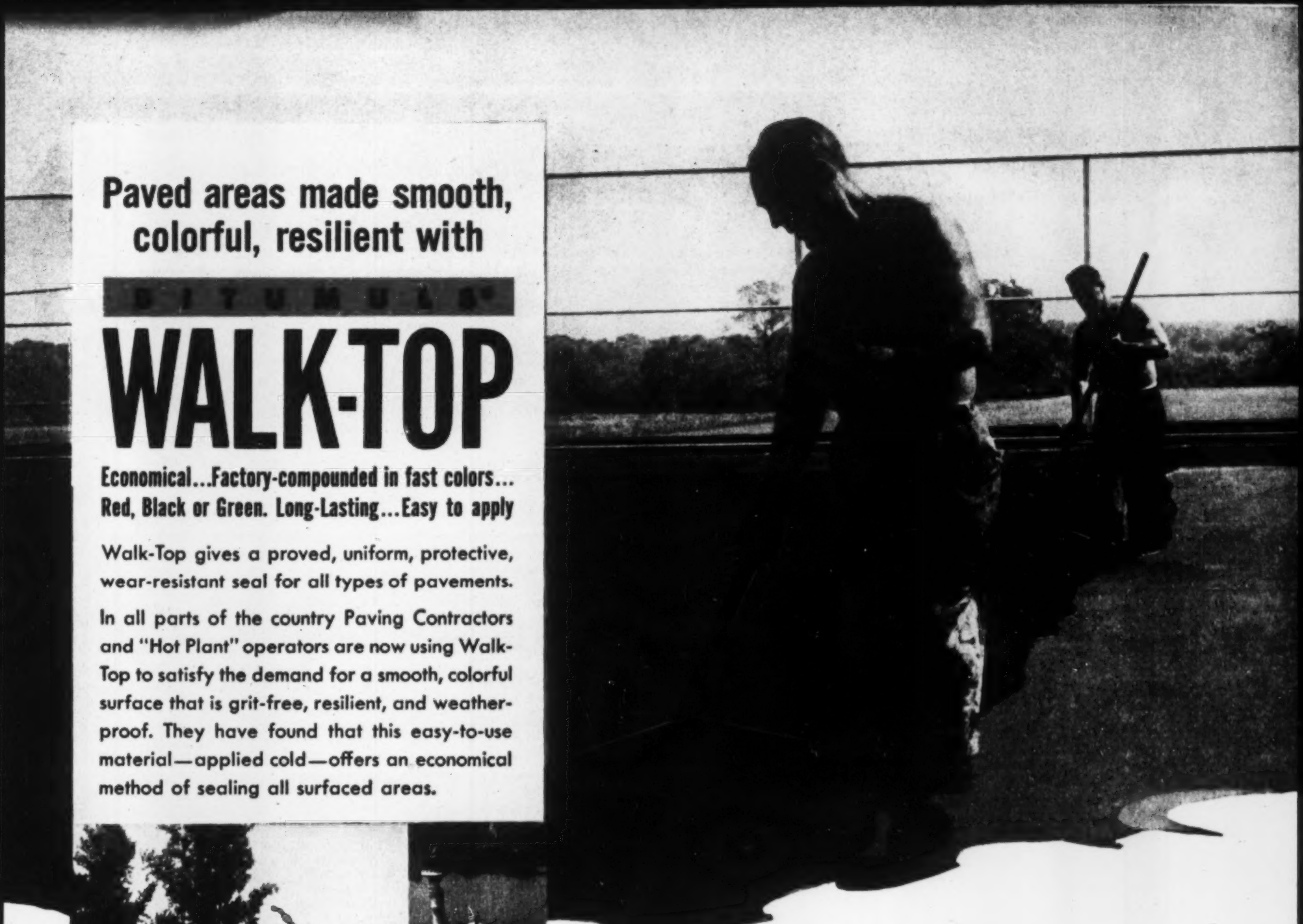
• **The far future**—It may one day be possible to erect a true prefabricated structure. So-called pre-fabs of today require hand labor to pre-assemble structural integrals. These are then relocated to the building site and the integrals are assembled by more hand labor. Through the use of plastics it is conceivable that an entire wall—complete with insulation, windows, internal and external finishes, etc.—could be extruded or molded in minutes instead of many man-hours.

Further large mobile extruders could be set up on the job site to produce plastic tunnel liners or tublar and box-section dwelling units. The bottom of the tubular sections could be heat creased to provide a flat floor.

But these projected applications depend on a great many factors and probably are many, many years away. Plastic building products today may not be nearly so impressive in size but their scope is considerable.

Plastic Products

Wall tiles & veneers—Flooring—Structural bars—Collectors—Stacks—Ducts—Pipe—Pipe Fittings—Pump bearings—Impeller seals & rings—Pump impellers—Valve seats—Packings & gaskets—Sponges—Hoses—Glazing—Air filters—Thermal insulation—Electrical insulation—Acoustical tile—Sill tracks & wheels—Wall plates, switches & plugs—Incinerator linings & sealers—Protective coatings—Acid-proof bricks & facing—Mouldings—Fluorescent lighting diffusers—Tube conveyor systems—Doors — Dynamite spacers — Circuit breakers—Calking compounds—Laminates — Waterstops — Adhesives — Membrane materials—Door knob assemblies—Water well inserts—Anchoring devices—Terrazo spacers—Fair-leads—Prestressing cable tubes—Mortar tubs—Drawing instruments—Surveying rods—Protective masks—Grinding wheels—Sanding belts—Work gloves—Levels.



Paved areas made smooth, colorful, resilient with

BITUMULS®

WALK-TOP

Economical...Factory-compounded in fast colors... Red, Black or Green. Long-Lasting...Easy to apply

Walk-Top gives a proved, uniform, protective, wear-resistant seal for all types of pavements.

In all parts of the country Paving Contractors and "Hot Plant" operators are now using Walk-Top to satisfy the demand for a smooth, colorful surface that is grit-free, resilient, and weatherproof. They have found that this easy-to-use material—applied cold—offers an economical method of sealing all surfaced areas.

This photograph shows the green walks on Bedloe's Island around the Statue of Liberty

Home-owners are proud of their distinctive "Walk-Top-sealed" driveways

FOR PLAY AREAS

Walk-Top seal is *standard* for thousands of school play areas throughout the country. In San Francisco, for example, over 2,000,000 sq. ft. of school playgrounds, both old and new, have been sealed with Walk-Top in the last two years alone. Other typical applications may be found in Akron, Pittsburgh, Washington, D. C., Providence, Fresno and Cincinnati. School and Park Authorities in these cities and in many others repeatedly specify Walk-Top.

WALKS AND PARKING AREAS*

Walk-Top is used extensively on all types of paving to provide a fast-draining, void-filling seal that is colorful, smooth and resilient.

FOR DRIVEWAYS

Walk-Top, easily applied cold over the old pavement, by brush or squeegee, gives a clean, enduring, colorful seal—at low cost.

WALK-TOP is available through Dealers and Contractor-Distributors throughout the country. Contact our nearest office for information.

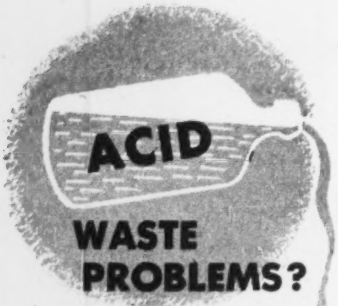
WALK-TOP and Play-Yard Binder for Playgrounds—Laykold Wearcoat and Resurfacer for Tennis Courts—standards of quality for over *twenty* years.

**For oil-resistance ask for Colfix Jet Seal.*

SEND FOR FREE ILLUSTRATED BOOKLETS

AMERICAN
Bitumuls & Asphalt
COMPANY

E. Providence 14, R. I.
Perth Amboy, N. J.
Baltimore 3, Md.
Mobile, Ala
Columbus 15, Ohio
Tucson, Ariz.
Seattle, Wash.
Baton Rouge 2, La.
St. Louis 17, Mo
Inglewood, Calif.
Oakland 1, Calif.
Portland 7, Ore.
Washington 6, D. C.
San Juan 23, P. R

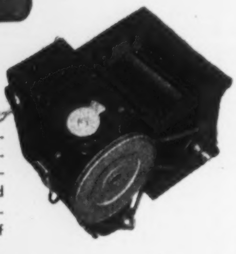


One of the country's largest manufacturers of television picture tubes recently solved its acid waste neutralizing problem.

1 **They consulted a competent engineering firm.**

2 **They purchased a B-I-F Industries "Equipment Package" for measuring flow of raw trade waste and for feeding hydrated lime in proportion to the flow for accurate, economical waste neutralization.**

Builders Pneumatic Flow Meter paces chemical feeder for accurate, economical utilization of neutralizing chemical.



Omega non-flooding Rotolock Feeder — feeds hydrated lime in proportion to flow of acid waste.

If you have a waste problem, B-I-F Industries will gladly cooperate with you and your consulting engineer in selecting the best flow metering and chemical feeding equipment for waste treatment.

SEND COUPON FOR DETAILS

B-I-F INDUSTRIES
390 Harris Ave., Providence 1, R. I.

☐ Please send Application Memo BIF-K8 describing system for neutralizing acid wastes.

☐ Please send "Industrial Waste Treatment Guide".

Name
Company
Street
City State

ADVERTISERS IN THIS ISSUE

Acker Drill Co. 59
Allis-Chalmers Mfg. Co. 1
Allison Engine Div., GMC 42
Amer. Bitumuls & Asphalt Co. 109
Amer. Bridge Co. 55
Amer. Mutual Liability Ins. Co. 56, 57
Armco Drainage & Metal Prods., Inc. 18

Baker-Lull Corp. 8
Barber-Greene Co. 84
Belmont Iron Works 108
Bethlehem Steel Co. 65
Bros Boiler & Mfg. Co., Wm. 69
Brunson Instrument Co. 84
Bucyrus-Erie Co. 12, 13
Builders-Providence, Inc. 110

Cement Gun Co. 82
Century Geophysical Corp. 54
Chain Belt Co. 38
Chicago Bridge & Iron Co. 2nd Cover
Chrysler Corp., Industrial Engine Div. 104
Cole Mfg. Co., R. D. 87
Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. Insert 33
Concrete Grinding Corp. 75
Complete Machinery & Equip. Co. 73
Cummins Engine Div. 111

Dudgeon, Inc., Richard 78

Ellicott Machine Corp. 79
Euclid Road Machinery 4, 5

Foote Const. Equip. Div., Blaw-Knox Co. 67

Gardner-Denver Co. 14, 15
Griffin Wellpoint Corp. 64
Gunite Concrete & Const. Co. 106
Guntert & Zimmerman 66
Gurley, W. & L. E. 45

Harnischfeger Corp. 10
Hayward Co. 78
Hewitt-Robins, Inc. 80
Hyatt Bearings Div., G.M.C. 30

Infilco, Inc. 70
Jenkins Bros. 34
Johns-Manville Corp. 48
Joy Mfg. Co. 16

Kalamazoo Tank & Silo Co. 59
Keasbey & Mattison Co. 62
Kinnear Mfg. Co. 74
Koppers Co., Wood Preserving Div. 63

Leupold & Stevens Instruments, Inc. 2
Link Belt Speeder Corp. 20

M & H Valve & Fitting Co. 78
MacArthur Concrete Pile Co. 84
Manitowoc Engineering Works 58
Masonite Corp. 6
McGraw-Hill Book Co. 105
McKiernan-Terry Corp. 87
McKinney Drilling Co. 83
Moretrench Corp. 82
Morin Mfg. Co. 75

Nat'l. Clay Pipe Mfgrs., Inc. 52
Natural Rubber Bureau 29
Nelson Stud Welding Div., Gregory Industries, Inc. 71

Ohio Locomotive Crane Co. 66

Peerless Pump Div., of Food Machy. Corp. 51
Phoenix Bridge Co. 106

Raymond Concrete Pile Co. 3rd Cover
Roebling's Sons Corp., John A. 3
Ryerson & Sons, Inc., Jos. T. 74

Sauerman Bros., Inc. 77
Servicised Products Co. 73
Smith Engineering Works 7
Sparling Meter Co. 106
Spencer, White & Prentis, Inc. 73
Sprague & Henwood, Inc. 66
Steelcraft Mfg. Co. 9
Superior Concrete Accessories 102
Symons Clamp & Mfg. Co. 77

Thew Shovel Co., The 107
Timber Engineering Co. 53
Timken Roller Bearing Co. 4th Cover
Trailer Village, Inc. 108

Union Mercantile Co. 82

Walker Cement Products 50
Walton Plywood Co., Inc. 84
Warren Foundry & Pipe Corp. 81
Wellman Engineering Co. 108
Westinghouse Electric Corp. 60, 61
Weyerhaeuser Sales Co. 83
White Co., David 76
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. Insert 33

Yeomans Brothers Co. 11

Professional Services 99, 100, 101

SEARCHLIGHT SECTION

(Classified Advertising)

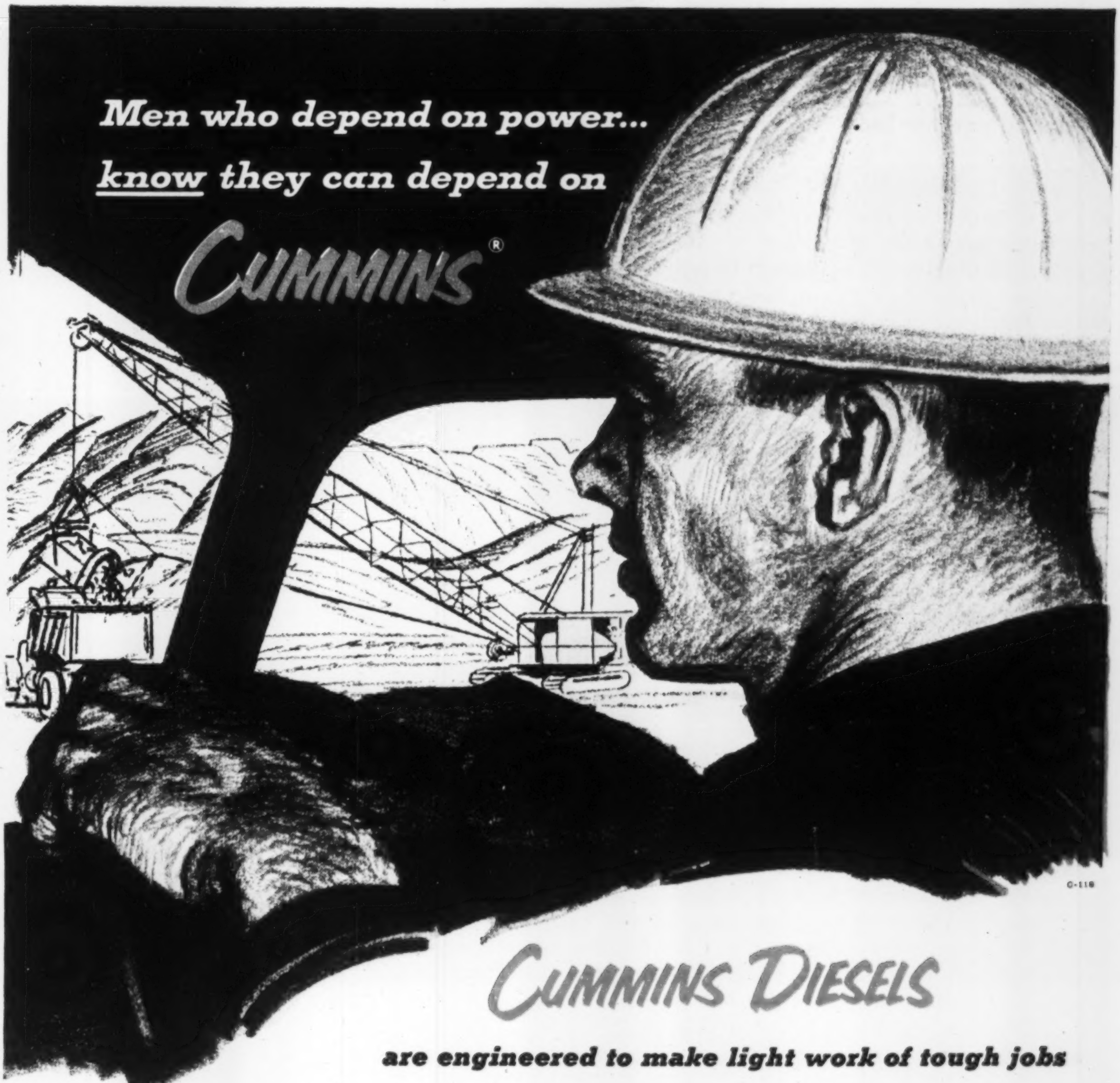
H. E. Hilty, Mgr.

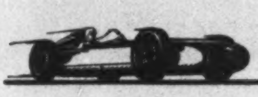
Employment 92, 93
Special Services 94
Educational 93
Business Opportunities 94
Notices 88-91, 94
Equipment—For Sale, Rent, Wanted 94-98
ADVERTISERS INDEX 101

ENGINEERING NEWS-RECORD

D. S. Robertson, *Adv. Sales Manager*
Howard T. Olsen, *Business Manager*

Sales Representatives: M. J. Storz and E. A. Callahan, Jr., 330 W. 42nd St., *New York;* F. G. Hudson, L. H. Hunt, W. G. Payne, 520 N. Michigan Ave., *Chicago;* R. E. Dorland, 68 Post St., *San Francisco;* A. B. Cozzens, 17th & Sansom Streets, *Philadelphia;* E. E. Duff, Jr., Hanna Bldg., *Cleveland;* B. F. Horn, Penobscot Bldg., *Detroit;* W. E. Donnell, Continental Bldg., *St. Louis;* H. L. Keeler, 1111 Wilshire Blvd., *Los Angeles;* R. H. Sidur, Rhodes-Haverty Bldg., *Atlanta;* James Cash, First National Bank Bldg., *Dallas. Other Sales Offices:* 738-39 Oliver Bldg., *Pittsburgh;* 350 Park Sq. Bldg., *Boston;* McGraw-Hill House, *London.*


Men who depend on power...
know they can depend on
CUMMINS®
C-118
CUMMINS DIESELS
are engineered to make light work of tough jobs



Enjoy thrilling 16mm Technicolor Sound Movie

"DIESEL RACE CAR"

PRINTS AVAILABLE FOR GROUP SHOWINGS! WRITE TODAY.

Leaders in rugged, lightweight high-speed diesel power!

Why do so many construction men count on Cummins for dependable power in toughest going?

You'll find part of the answer in the special kind of versatility that belongs to Cummins Diesels alone. It's versatility that goes beyond the handling of all kinds of jobs. It's actually an ability to meet every power requirement that any situation demands . . . to save on fuel, do more work per dollar, whether the call is for continuous power or stop-and-go operation over a wide and flexible speed range.

Yes, you can count on a (60-600 h.p.) Cummins Diesel for dynamic versatility in every job—performance that stems from an exclusive fuel system and precision engineering. See your Cummins dealer for all the facts. He's a diesel specialist . . . ready to help solve your power problems.

CUMMINS

CUMMINS ENGINE COMPANY, INC.
Columbus, Indiana
Export: CUMMINS DIESEL EXPORT CORPORATION
Columbus, Indiana, U.S.A. Cable: CUMDIEX

EDITORIALS

Fostering new methods

MANY ATTEMPTS have been made in recent years to foster the use of a new material or construction method by incorporating it in an alternate design. This tactic generally has proved unsuccessful.

A few years ago, the Texas Highway Department tried to introduce welding for steel highway bridges by taking bids on alternate designs. This didn't work. Bids on welded work were too high. So the department called for bids on welded construction only. That did work. And after the first bridges had been constructed and contractors had become better acquainted with welding, costs came down. The Massachusetts Department of Public Works had a similar experience last year when it tried to introduce prestressed concrete for highway bridges through alternate designs.

To begin with, alternate designs are unpopular with contractors. This was brought out with emphasis at the recent conference on prestressed concrete at Newark College of Engineering (ENR May 7, p. 26). Contractors don't like the added estimating expense involved nor the incompleteness of the plans when leeway is given for bidding on unspecified design details. So there is a lack of interest in bidding on alternate designs, which is not conducive to economy nor encouraging to introduction of new methods.

Furthermore, experience to date has shown that contractors who do bid on alternates favor the material or method with which they are most familiar. In nearly every case, this means that the low bid is tendered for the more conventional design.

Consequently, it is extremely difficult to introduce a new design at the lowest possible cost to the owner of the structure through competitive bidding on alternate designs. Until a better way is found, the best procedure is for the designer to select the material or method that, in his judgment, is most desirable, and specify it.

Composting provides no panacea

A RECENT DISCUSSION of composting of municipal and industrial wastes (p. 35) puts the subject in perspective with two of its major statements: (1) It has not yet been proved that composting can be justified on the basis of waste recovery alone. (2) Less progress has been made in solving the mechanical problems of composting than in understanding the biochemical process. This was discussed by Richard R. Kennedy, San Francisco consulting engineer.

His first point was stated forcefully by another consultant recently. He put it this way: "The most that can be said in favor of the best of the many [composting] schemes is that they can show a return."

The second point finds added support as a result of the recent operating troubles of a composting plant on Long Island (ENR April 23, p 24). Segregating the wastes is an expensive task; grinding of even segregated garbage is a severe strain on available grinders; and aerobic handling of moist garbage on metal parts suffers the curse of corrosion.

The single conclusive lesson to be drawn from all of this is perhaps that there is not as yet any proved means of making waste disposal pay; it is merely possible in some instances to cut the cost of disposal by prudent waste (and waste heat) recovery. Consequently, it behooves the engineer to consider each of the several methods of disposal and to choose composting only when it proves itself economically advantageous over other effective methods.

Federal taxes for highways

PATIENTLY the Subcommittee on Roads of the House Committee on Public Works listens day after day to testimony from the many who want to be heard on what Congress should do about highways. Out of it all stands evidence that those who continue to advocate immediate withdrawal of the federal government from the field of motor fuel taxation are not taking a very practical view of the present situation. They fail to realize that such a step almost inevitably would be followed by revolutionary changes in federal policy.

Federal withdrawal from the field of motor-fuel taxation might well mark the end of federal aid to highways, and if that is cut off, there would be little justification for continuing the Bureau of Public Roads with all it has done to unify highway work in this country and to develop acceptable standards to be applied to the federal-aid system. Nor would abandonment of the federal tax automatically insure that the states would get more money for roads.

This was pointed out at one of the hearings by Paul V. Betters, executive director of the United States Conference of Mayors. If the federal government repeals its gas tax, said Mr. Betters, "it does not necessarily follow that all or most of the states would impose the additional 2¢ levy. Or if imposed, that the revenue would be specifically earmarked for highways."

Instead of abandonment of the federal tax, both the U. S. Conference of Mayors and the American Association of State Highway Officials have gone on record with the Road Subcommittee as favoring increasing the federal level of expenditure to that of federal income from its gasoline tax as the most practicable means for insuring a high level of highway construction in the years ahead.

When highway conditions become less critical will be a better time to give thought to how the federal government can get out of the field of motor fuel taxation without upsetting the present system of financing highways, if such a change still appears desirable.

RAYMOND SERVES SEARS ROEBUCK

INGLEWOOD, CAL.

Architect: Stiles O. Clements.
Contractor: L. E. Dixon Co.

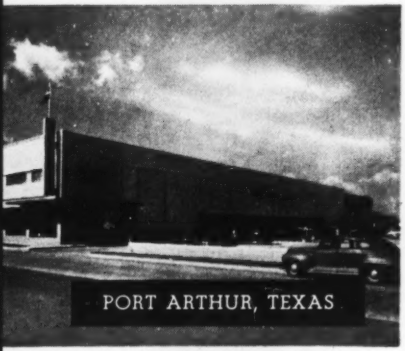
CHARLESTON, W. VA.

Architect: The Ballinger Co.
Contractor: Wise Contracting Co., Inc.

COMPTON, CAL.

Architect: Stiles O. Clements.
Contractor: L. E. Dixon Co.

Sears Roebuck & Company continues to turn to Raymond for their foundation work . . . Sixteen different Sears stores (seven shown here) in ten States rest on Raymond piles . . . These repeat performances are further evidence that leading industrial organizations consistently utilize Raymond services for their important projects.


PORT ARTHUR, TEXAS

Architect & Engineer: George L. Dahl.

NORFOLK, VA.

Architects: Shutze & Armistead. Engineer: Robert G. Lose. Contractor: A. Artley Co.

RICHMOND, VA.

Architect: The Ballinger Co.
Contractor: Wise Contracting Co., Inc.

ASHVILLE, N. C.

Architects: Shutze & Armistead.
Contractor: Merchant Construction Co.

RAYMOND CONCRETE PILE CO.

140 CEDAR STREET · NEW YORK 6, N.Y.

Branch Offices in the Principal Cities of United States and Central and South America

SCOPE OF RAYMOND'S ACTIVITIES . . . Foundation Construction . . . Harbor and Waterfront Improvements . . . Soil Investigations . . . In-Place Pipe Lining . . . Specialized Construction.

Does work of larger graders at half the cost . . . *with help of TIMKEN® bearings*

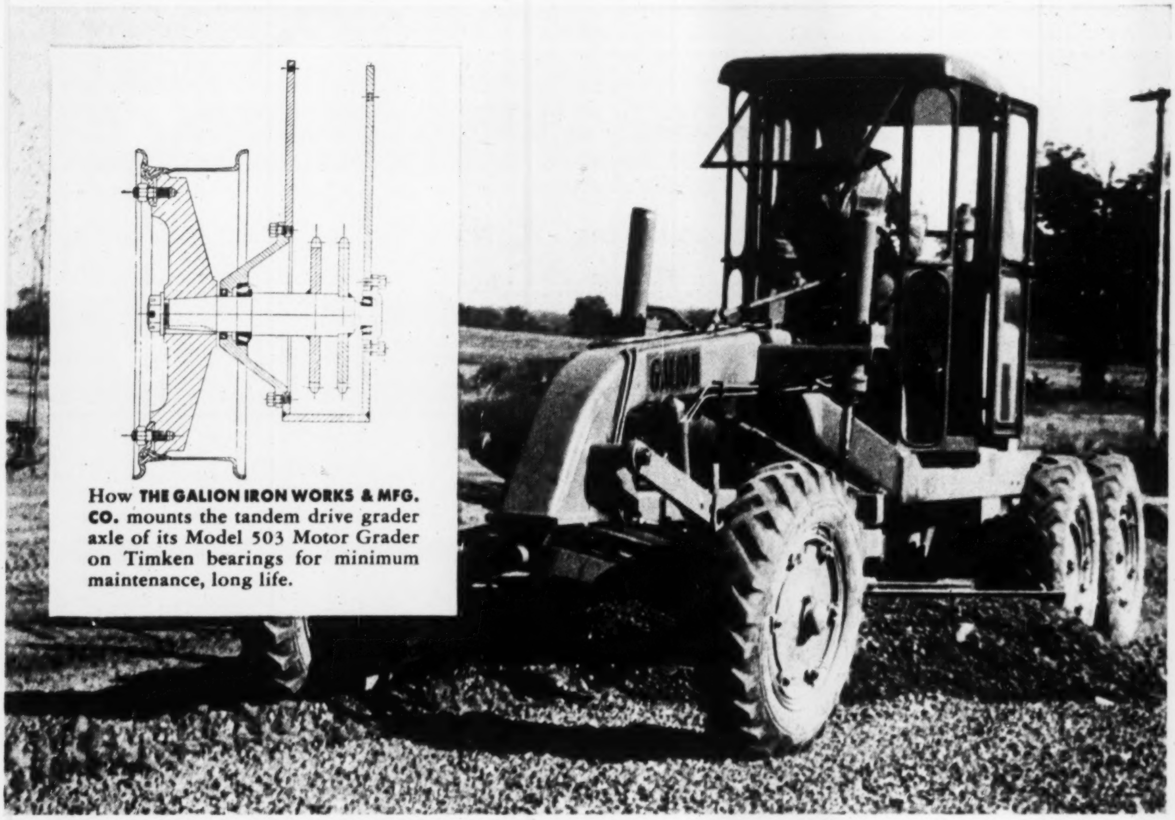
THE Galion 503 Model Motor Grader does most jobs as efficiently as larger graders, yet at half the cost with the help of Timken® bearings on front wheels, tandem drive and idler pulleys.

The dirt, dust and mud this grader works in call for effective closures. By holding housings and shafts concentric, Timken bearings make closures more effective—keep lubricant in, dirt and moisture out. Result: less maintenance on the grader, more maintenance on the road.

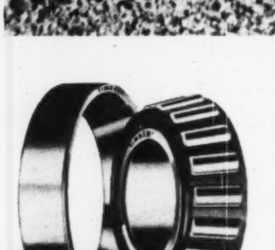
With Timken bearings on the tandem drive, greater driving power is assured, bigger loads can be handled. Full line contact lets Timken bearings handle these heavy loads with ease.

Be sure to specify Timken bearings in the machines you build or buy. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



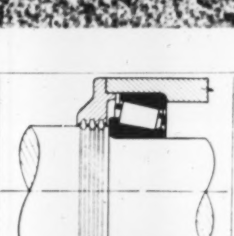
How **THE GALION IRON WORKS & MFG. CO.** mounts the tandem drive grader axle of its Model 503 Motor Grader on Timken bearings for minimum maintenance, long life.



TIMKEN

TRADE-MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS



LUBRICANT STAYS IN —DIRT KEPT OUT

Because Timken bearings hold shafts concentric with housings, closures are made more effective. Lubricant is retained, dirt and moisture kept out.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ▯ AND THRUST ─▯─ LOADS OR ANY COMBINATION